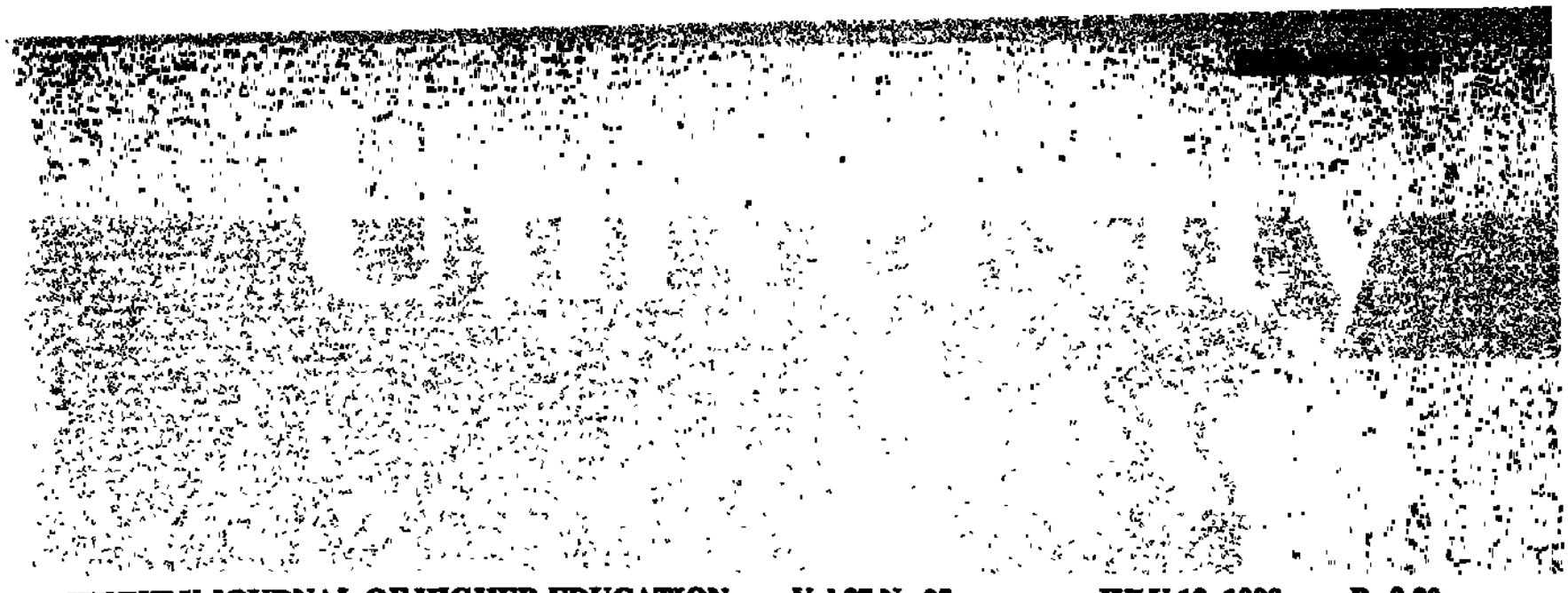

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Jamia Hamdard
—A University for Quality & Relevance

External Brain Drain
—An Opportunity for Trade in Services Sector for India

Health Management Education
—Indore Model

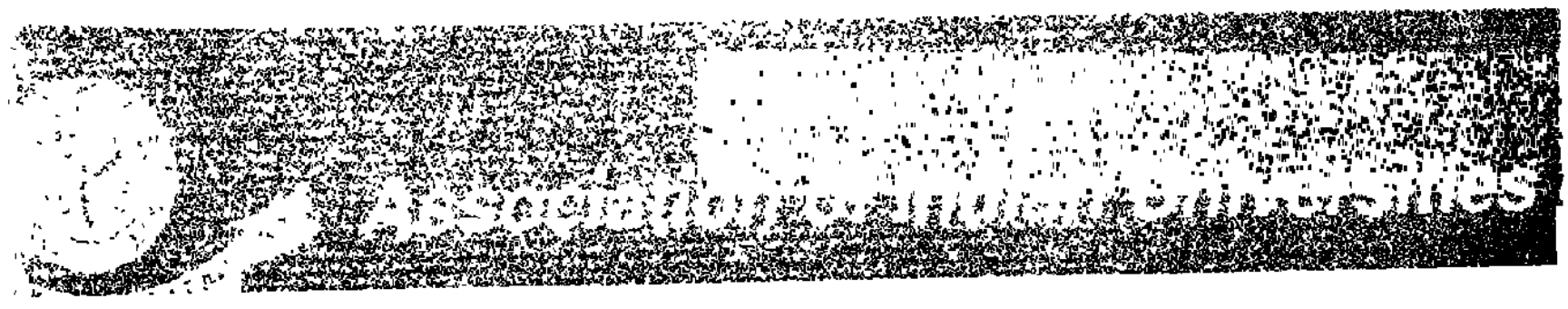
The ISIS/SIS
—Pioneer in International/Area Studies

Emerging Trends in Education, Teaching & Learning and Knowledge Management
—Convocation Address

CIPHER CODE FOR NAVY

SCIENCE IN NEXT MILLENNIUM

YOUNG SCIENTISTS FELLOWSHIP SCHEME



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IN THIS ISSUE

Jamia Hamdard

A University for Quality & Relevance

Jamia Hamdard (Deemed University), New Delhi hosts the 258th meeting of the Standing Committee of the Association of Indian Universities on July 15, 1999.

Jamia Hamdard is situated in the sylvan surroundings of Tughlaqabad on the Mehrauli-Badarpur Road in the South-East of Delhi. The campus that covers an area of about 100 acres of land is picturesque and away from the din of the metropolis.

Jamia Hamdard was declared as 'Deemed to be University' by Government of India in May 1989 under University Grants Commission Act 1956 after amalgamating the erstwhile five institutions established at Hamdard Nagar by Hakeem Abdul Hameed, an internationally acclaimed Physician of Unani (Greeco-Arab) system of medicine. This University was built brick by brick with the income of Hamdard Waqf, the first and perhaps the only instance in the history of Waqfs, so far in which a flourishing private enterprise of great promise was converted into a charity.

Jamia Hamdard, *a centre for learning the healing*, is truly a national asset in the service of the nation at large and the weaker sections and the minority communities in particular. The goal the University has set for itself is to develop appropriate human resources to meet the emerging global challenges coupled with the mission to provide value-based and value-added education to all students. The doors of the University are open to all irrespective of caste, colour and creed.

Jamia Hamdard has completed first decade of its founding as a Deemed University. In a short period, Jamia Hamdard has emerged as an outstanding institution of higher learning with distinct and highly focused academic programmes of quality and relevance. Jamia Hamdard has always been a University with a difference. An outstanding contribution of the University is that it has developed the well tested effective system of Unani medicine interfaced with modern science and technology through a well developed composite Hospital.

Jamia Hamdard has pursued Ph.D programmes in several disciplines including Federal Studies and Pharmaceutical Medicine which are unique to this University. The University has homogenised Unani Pharmacy with modern Pharmacy and awards Master Degree in four sub-disciplines of pharmacy. The University also specialises in allied health and environmental sciences and has a full-fledged Department of Toxicology and Medical Elementology not seen elsewhere in the country. Nurses are trained both in Modern and Unani system of medicine. In Social Sciences, the Department of Islamic Studies stresses on studies and the use of Islamic tenets for the welfare of human beings and focuses on contributions of Islam for better understanding and harmony in the Society. All in all, in the various faculties of Jamia Hamdard, the endeavour has been to combine the oriental thought and knowledge with the modern scientific methodology.

Initially, teaching programmes provided only Bachelor's Degree in Unani Medicine, Pharmacy and Diploma in Nursing. Today, the University imparts instruction leading to a Diploma and Bachelor's

degree in six disciplines and Postgraduate degree in a dozen disciplines and doctoral programme in all the subjects of Pharmacy, Science and Social Science. All the academic programmes are fully supported by modern information technology through a recently established excellent computer centre, modern library system, central instrumentation facility and other means of educational technology including computerisation of all the faculties. University has established on its campus an excellent Convention Centre with all modern facilities for conferences and seminars. A well equipped composite hospital of 150 beds supports teaching, research and health services both in Modern and Unani systems of medicine.

Degrees/Diplomas awarded by the University

1. Ph.D. and Master degree in :

   (a) Pharmacy — Pharmacology, Pharmaceutics, Pharmaceutical Chemistry and Pharmacognosy.

   (b) Science — Biotechnology, Biochemistry, Environmental Botany, Toxicology and Chemistry.

2. Ph.D. in Pharmaceutical Medicine, Islamic Studies and Social Science (Federal Studies).
3. Doctor of Unani Medicine (M.D.) in General Medicine and Pharmacology.
4. Master of Computer Applications (MCA)
5. Master of Business Management (MBA)
6. Master of Information Technology (MIT)
7. Master of Physiotherapy (M.P.Th.) in Osteomyology, Cardiovascular, Neurology and Sports.
8. Bachelor of Computer Applications (B.C.A.).
9. Bachelor of Pharmacy (B.Pharm).
10. Bachelor of Unani Medicine (BUMS).
11. Bachelor of Nursing (B.Sc. Nursing)
12. Diploma in Pharmacy (D.Pharm).
13. Diploma in Nursing (D. Nursing).

Future Programmes :

* Paramedical courses — Diploma/degree programme in Medical Laboratory Technology, Radiology, Operation Theater Technology.
* Dental College.
* Medicine (Modern).
* Buildings for Teachers and Staff quarters, academic buildings, Hostel (Girls and Boys), Hospital extension.

External Brain Drain
An Opportunity for Trade in Services Sector for India

Pawan Agarwal*

External Brain Drain

Emerging trend of internationalisation of higher education is reflected in the increased student mobility. Number of people pursuing higher education studies outside their country of origin increased by almost 30% over the last decade. The world today is more inter-dependent that it was merely 5 years ago. During last year, nearly 34,000 Indian students went to the US alone in addition to nearly 30,000 Indian professionals, who went there for work. This accounts for almost half of the total Indian students and professionals going abroad. Australia and Europe are other favourite destinations. Nearly 3/4th of them do not return after their studies preferring to stay on abroad. More than 75% of these knowledge workers (students/professionals) have benefited from highly subsidised higher education in India. No estimates of the subsidies on them are available. Most students going abroad pay full fees. It is estimated that there is an outflow of Rs. 2000 crores per year from this country on account of higher education abroad. Liberal foreign exchange regulations have facilitated this process. The receiving country benefits by getting migrant professionals having a value in them at no costs. Full fee students support their higher education institutions.

From time to time various restrictive measures to contain the problem of brain drain have been conceived, but there has never been a consensus except in case of the medical sector — where we have certain restrictive provisions (*Annexure I*). Incidentally, these originate as our response to US regulations, which are based on their domestic compulsions. Restrictive policy in the medical sector is expected to regulate the flow of doctors and is influenced by highly subsidised education provided to them. This however takes care of only 15% of the total student outflow. Nearly 40% of the students go abroad for engineering and technology, 25% for management and 20% for other subjects. It is not only medical education or even professional education, entire higher education is highly subsidised in India. Therefore, regulatory mechanism, if any, need to be evolved for the higher/professional education sector, system as a whole.

The overall adverse effects of this external brain drain are well known and in most cases are not counterbalanced by the financial remittances sent back by those employed or by other beneficial side effects. The lack of local incentives and opportunities for professional advancement are prevalent factors causing this brain drain. Most of those who leave are direct beneficiaries of huge govt. subsidies. There is an average subsidy element of Rs. 5 lakh for an engineering graduate and Rs. 7.5 lakh for a medical graduate in India. There has been an emotive response to issue of use of limited capacity of the higher education institutions created at heavy costs (particularly good institutions like IITs/IIMs) by individuals taking advantage of the highly subsidised education and going abroad at the earliest available opportunity, but a coherent policy to check this trend is yet to evolve.

Since lack of opportunities for intellectual growth and absence of essential infrastructure are cited as main reasons, any restrictions on them have been opposed. It is felt that restrictive policies will result in self-imposed intellectual isolation and will prevent cross-fertilisation of ideas. It is often argued that the migrant knowledge workers are a source of heavy remittances and facilitate investments in addition to bringing international goodwill to the country. However, studies have shown that remittances from knowledge workers to the West have dried up over a period of time.

Services Sector : Comparative Advantage — India

Services sector is becoming a dominant sector in most economies and international trade in higher educational/professional services is increasing exponentially. In some of the fast growing economies of the world, services account for nearly 70% of the GDP (US : 66.7% and Australia : 70%). Services account for approximately half of foreign direct investment flows — a key strategic ingredient in the internationalisation of services. Professional and higher education services are a significant component of the services sector. A

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number of multi-lateral and bilateral agreements on issues of professional equivalency, academic program recognition and accreditation and reciprocity have been signed in recent years.

India with its large qualified manpower base has the best brains and some of the best educational institutions in the world. It has a comparative advantage in making a significant contribution globally to the services sector with high employment potential. Some of our institutions are sending more than 25% of their pass-outs to the West and 75% of them not coming back at all. In spite of lack of a coherent policy in human services export, India is playing a significant role. Indians — mostly computer professionals — bagged more than 40% of the 65000 H1-B visas issued by the US during 1998.

New Initiative

It is in the context of comparative advantage of the country with its huge qualified manpower capable of playing a major role in the services sector globally and to address the problem of external brain drain, that a policy initiative is proposed. This initiative is to evolve facilitating policies without compromising the national interest.

Basic Principles

Basic principles followed under the new initiative are :

(a) Substitution of restrictive measures by a facilitating mechanism ensuring greater role for India in the services sector globally.

(b) Broadening the scope of govt. intervention to the entire higher education and professional services sector (i.e. knowledge workers excluding manual workers) progressively in a phased manner.

(c) Removal of all restrictions for Indians (except a few critical areas temporarily) to go abroad for higher studies or training subject to the condition that they return on completion of their training/higher studies.

(d) Cost recovery from those obtaining higher/professional education (beyond class 12) at subsidised fees and leaving the country to settle abroad or for employment.

(e) Use of receipts from cost recovery mechanism for creation of additional capacities and upgradation of facilities in institutions of higher education/training.

Mechanism

The new initiative seeks to remove all restrictions except in very limited disciplines where there may be genuine shortfall of qualified/trained manpower in the country. This could be the basis of a *temporary negative list*. An attempt may be made to do away with this negative list over a period of time by creating additional capacities in these identified disciplines. Those obtaining higher/professional education at full fees against payment or NRI/Foreigner seats will have no obligations under the scheme. Those, who obtain higher/professional education at subsidised fees will be routed through an *'Agency'*.

A knowledge worker may leave the country either for higher education/training or for employment. For higher education/training, in case he returns after acquiring higher education/training, the valuable new skills are more important than the deprivation the country faces due to the period of his absence. However, in case a student fails to return, it is an economic as well as a social loss for the country. It can only be partly compensated by recovering the cost of education provided to him at subsidised rates.

For employment, in case knowledge worker leaves for employment abroad, he may be made to reimburse the cost of subsidised education in suitable instalments and balance amount may be payable at the time of his surrendering the Indian passport to get a green card or a foreign passport. In case a knowledge worker going abroad for education/training takes up a job, necessary repayment may begin with the change in his visa status.

The entire amount realised through cost recoveries is to be credited to an *'International Education Development Fund'* (IEDF). This will be ploughed back to the institutions providing subsidised education. The institutions will utilise this amount for creation of additional facilities and upgradation of existing ones.

'Agency' functions under the proposed mechanism may be performed by a consortium of financial and educational institutions. This agency may also manage the International Education Development Fund. Those knowledge workers, who are not able to pay up-front at the time of their leaving the country may be allowed to execute a bond for the amount depending on the subsidy element of higher education taken by them and expected time of completion

of higher studies abroad. The bond should be an *'internationally enforceable legal instrument'*. No fees except a nominal amount towards processing fees may be charged by the agency from the knowledge workers. The agency may however be allowed to deduct its service charges from the payments received/costs recovered.

The amount of cost recovery may vary from institution to institution and programme to programme. Government of India policy on fee fixation has laid down elaborate procedure on determining fees for free seats, payments seats and NRI/foreigners seats. Cost recovery from knowledge workers going abroad may be limited to differential between the fees under payment seat and free seat. This shall be in tune with the Supreme Court orders relating to prevention of commercialisation of education and Govt. of India policy on fee determination.

In case a knowledge worker pays the bond amount either at the time of leaving the country or at any time during stay abroad, he shall have No Obligation to Return to India (NORI). In case, a person fails to return or repay on expiry of his bond period, the Agency may proceed to realise the amount from the person concerned. Period of bond may be subject to renewal under exceptional circumstances.

The Agency may work out a hassle-free procedure for discharge of its functions of maintaining record of knowledge workers going abroad, executing bond, receiving/realising repayments and apportioning/disbursing it between educational institutions. The Agency may provide international job markets intelligence and consultancy on higher education and training opportunities abroad. Suitable financial products may be floated by the Consortium to facilitate knowledge workers going abroad and fulfil their obligation under this initiative.

Institutions and Programs may be brought under this scheme progressively in a phased manner. IIITs/IITs/IIMs/RECs/Central Universities and professional programs under these institutions may be brought under purview of this scheme initially. For this purpose, estimates of subsidies for these programs are required on basis of their internal costing data.

Win-Win Situation

The guiding principles and the mechanism above will create a win-win situation for all :

- Knowledge workers can access international job markets without any restrictions whatsoever.
- Knowledge workers, who wish to go abroad to enhance their knowledge base, have no obligation to repay costs even if benefited from subsidised education.
- Institutions benefit in having access to greater resources for creation of additional capacities and up-grading facilities.
- Country benefits by having a pro-active policy facilitating liberalisation, global intellectual growth, creating additional capacities in Institutions of international standards and greater role in the global services sector.

Reverse Brain Drain Initiative

Where as this initiative will facilitate greater role for India in global services trade, it may not completely counterbalance the adverse effects of intellectual capital outflow. Therefore, it is proposed that initiatives similar to initiatives taken by many of the developing nations to attract their professionals back could be taken. In this direction, India may launch a special program to identify and attract experienced high level Indian professionals to participate in mission-oriented projects in govt. agencies and the private sector. It may be pertinent to mention here that with new information and communication technologies, requirement of physical presence is no more essential and participation of Indian professionals abroad could be achieved by networking with them electronically. International travel has become more affordable and less time consuming. Therefore, a properly conceived initiative to counterbalance the adverse effects of external brain drain could be thought of under the new paradigm.

[The observations and comments do, not necessarily reflect Government's views.]

Annexure I

Restrictive policies for medical education abroad

1. There is a history of three decades of restrictive policies for medical education abroad. This was started initially with the objective of controlling foreign exchange outflow and optimum use of facilities in India. Later, its objective was redefined to regulate the flow of doctors influenced by highly subsidised education provided to them. Present restrictions largely apply to those going to US in view of US regulations, which themselves are based on their domestic compulsions. These restrictions are in two categories :

a) Professional trainee category — for stay up to 7 years but meet very stringent requirements including a two years physical stay that cannot be waived through issue of a 'No Obligation to Return to India' (NORI) certificate. Additional time is not allowed even for sitting for examination or certification.

b) Teachers, professors, research scholars and specialists visitor status category — Less stringent requirements for brief stay. No Obligation to Return to India (NORI) certificate issued in case spouse is a foreigner or green card holder, applicant has got entire education abroad, applicant spent more than 20 years abroad, in case applicant is above 50 years of age and worked in India for 15 years or more.

2. NOC is given only in respect of certain identified specialities. Since such specialisation is preceded by basic courses in internal medicine, surgery, therefore it had become necessary to issue NOC even for basic courses. List is updated from time to time. A bond of Rs. 50,000/- only for the period of NOC on plain paper — not legally enforceable is executed. There is a bar on conduct of examination by ECFMG in India.

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Health Management Education
Indore Model

B.C. Chhaparwal*
P.N. Mishra**
R. Chaskar***

Introduction

India is one of the oldest surviving civilizations of the world. A well-developed system for town planning, architecture, agriculture, metallurgy, transportation etc must have been in existence to support such a developed society; historical evidences also endorse it. A wonderful society like that could not have existed and survived without a developed healthcare system and healthcare education system.

India has a rich, centuries old heritage of health sciences. The philosophy of Ayurveda and the surgical skills enunciated by Charaka and Sushrita bear testimony to the fact that our ancient health system was of a holistic nature, which took into account all aspects of human health. Ancient Indian healthcare education system was both formal and informal, with the objective of taking the wisdom of healthy living to the grassroot level. At some point of time in the history of India the entire social fabric of this nation got destroyed due to foreign invasions and other factors — healthcare system and healthcare education system being no exception. In other parts of the world various systems of medicine evolved at different times and made a significant impact on the contemporary thinking. Advancements in the field of health sciences made elsewhere were welcome in this country, but still the old therapies and pathies survived. Today we have ayurveda, herbal medicine, homoeopathy, yoga, tribal methods of treatment etc, all surviving and growing at their own pace. However, the allopathic system of medicine has, in a rather short period of time, made a significant impact on the entire approach to healthcare.

Health is an important input in any process of development. An unhealthy society cannot be a society of high achievers and cannot make a nation great. Need for a healthy society and a healthcare system to support that is beyond doubt and discussion. If India has to prosper and face the opportunities and challenges of next millennium, it cannot neglect health, education, communication and transport. Investment in health is not only humanitarian, moral and ethical, it is an economic imperative also.

Healthcare Scenario

Since independence considerable progress has been made in the promotion of health status of the people. A fairly extensive network of dispensaries, clinics and hospitals providing specialized curative care has been developed. In spite of such impressive progress, the demographic and health picture of the country still causes serious concerns. From a nation of about 300 million in 1930, we are a nation of about one billion today, which has posed enormous problems for the healthcare system. The government alone can't complete such a herculean task of providing healthcare to a vast population like this. The present day healthcare services are predominantly urban oriented, mostly curative in nature, and accessible only to a small part of the population.

Healthcare services are delivered by the Healthcare Systems. They should have three major components : Firstly, they should be organized to meet the needs of the entire population and not selected groups; secondly, community participation should be a major component; and thirdly, more emphasis should be given to primary healthcare rather than curative healthcare. A fundamental necessity of a healthcare system is the provision of a sound referral system between the different levels. Today the hospitals are merely curative centres; they are far from being centres for delivery of comprehensive healthcare services.

As per the recommendations of WHO, the total bed strength to cover the medical needs of Indian population of approximately one billion would be of the order of about four million hospital beds. At present there are about 0.7-0.8 million hospital beds only in India. Thus, quantitatively speaking the hospital beds are largely deficient.

Prior to 1983, the government provided most of the healthcare in India, the main responsibility being that of the state government, whereas the central government provided major guidelines and initiatives. The government healthcare services were al-

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most free to everyone, however, keeping in view the large population to be served and the deficient infrastructure facilities, a proper quality healthcare could not be delivered by these institutions. At the same time a big middle class with paying capacity and demand for better healthcare was emerging very fast. This led to emergence of a new category of hospitals in the private and corporate sector. In 1983 Apollo Hospital, Chennai became the first comprehensive corporate hospital in India. The hospital brought a new culture of professionalism and quality care. By 1995 about 150 corporate hospitals had been established, with many others in the pipeline. With this new wave of professionalism, increasing competition and rising costs, the focus shifted towards an efficient and effective healthcare system, where the ground rule was to provide quality services to the patients at a reasonable cost. The state owned hospitals were not-for-profit, but a modern corporate hospital does not exist only for service; profit motive is quite evident.

Need for Hospital Administration as an Academic Discipline

Hospitals are increasingly becoming complex organizations, and are becoming the hub of activities by linking the population through integration of primary, preventive and curative healthcare. In the last two decades, healthcare has grown both quantitatively and qualitatively. These organizations require trained professionals with the requisite knowledge to plan, direct, coordinate and control the various activities, with the objective of producing quality care, as well as effective utilization of funds and other resources.

The emergence of Hospital Administration as a discipline and the genesis of profesional hospital administrators can be traced to the days when management science made inroads into the service sector form business and industry. In early sixties, Dr. McGibony, Consultant on Hospitals and Administrative Medicine, WHO was invited by Government of India, as an expert to deal with issues pertaining to medical care and hospitals. He recommended the introduction of Hospital Administration as a separate speciality. Hospital Administration is a multidisciplinary approach incorporating modern managerial tools and techniques, principles of public administration, behavioural sciences etc. Along with this, a sound knowledge of clinial outcomes and comprehension of the structure and processes of the medical disciplines is also necessary.

The role of the physicians and surgeons is crucial in any healthcare organization. A doctor, in an ideal situation, should give his/her time to the jobs relating to his/her discipline and speciality only. If doctors manage hospitals they will be left with no time to do their main job, also proper management would not be achieved since they have no background in the management skills and techniques. Given the increasing complexities of the hospitals and healthcare institutions, the need for better management is increasingly being felt. Hence, a new breed of hospital administrators is the need of the hour in the global scenario in general and the Indian scenario in particular. Personnel trained to carry out this function of hospital administration are extremely few in this country. As a result there is a wide gap between the need and availability of professional managers in both, the public and the private sector. The growth of corporate hospitals has created new opportunities for professional managers specializing in health and hospital management.

It is clear that we need many more healthcare profesionals at all levels, who would use their management skills and abilities to do things in a better way, i.e., with greater efficiency by improving the healthcare processes, and with greater effectiveness.

This requires health management education of high quality, capable of developing management skills and attitudes, which not only fulfils the necessary requirements, but also goes beyond it to bring about the requisite changes in the healthcare system. Healthcare employees have to become effective healthcare managers. Management needs to have proper supervision, effective leadership, better planning, problem solving, and self-renewal capabilities. Effective clinical practice and nursing care do not just happen, they need to be planned, organized, coordinated and evaluated along with the entire setup of the hospital. Some institutions have felt this need and became leaders in the field of imparting healthcare management education. Devi Ahilya University is one such Institution.

The Hospital Administration Programme

The hospital administration programmes of the Devi Ahilya University are conducted by the Institute of Management Studies.

The objectives of the hospital administration programmes are :

i. to provide quality educational inputs to equip students with up-to-date knowledge of modern management concepts and techniques;

ii. to inculcate knowledge and understanding of the complexities of healthcare and medical care; and

iii. to create aptitude for learning and research in the field of hospital administration.

The Institute of Management Studies first conceived M.B.A. (Hospital Administration) 5 Year Programme for students with 10+2 biology background and M.B.A. (Hospital Administration) 2 Year Programme for doctors. Subsequently the Institute restructured its hospital administration programmes and launched Bachelor of Hospital Administration (B.H.A.) 3 Year Programme and Master of Hospital Administration (M.H.A.) 2 Year Programme; a B.H.A. pass out can be directly admitted to M.H.A.

Highlights of the M.B.A. (H.A.) 5 Year Programme

The basic objective of the programme was to create professional non-medical healthcare administrators who could also understand the medical jargon. The course duration of five years was divided into fifteen trimesters, each of three and half months. The students were offered over 2500 hours of classroom teaching in 72 core and functional area courses. The curriculum emphasized on written analysis of a large number of cases and active participation in case discussions besides, seminars, role-playing, management games, and number of library research assignments. The students had to undergo six weeks of summer training in hospitals after each academic session, besides six months of training during the final year. The students have undergone summer training in almost all the leading hospitals, pharmaceutical companies, and multinational organizations of the country.

Highlights of the M.B.A. (H.A.) 2 Year Programme

A two years M.B.A. (Hospital Administration) programme was also launched for doctors. Some doctors land up doing managerial jobs, however they neither succeed as doctors nor as managers. The basic objective behind launching this programme was to provide them with a managerial acumen so that they are able to do the job more efficiently and effectively. The course duration of two years was divided into six trimesters. The students were offered teaching in thirty-six core and functional area management courses.

As stated above, hospital administration programmes were restructured and the current programmes are B.H.A. and M.H.A. The M.H.A. programme is duly approved by the All India Council for Technical Education (AICTE).

Highlights of the B.H.A. 3 Year Programme

This is perhaps the first undergraduate programme in hospital administration in India. The course curriculum has been so designed as to expose a student to different aspects of social sciences, managerial sciences and hospital administration. The B.H.A. students are well informed and trained to become healthcare professionals. The programme deftly combines management courses with special courses in areas of hospital administration, healthcare management and medicine. A four to six week summer training is in-built in the programme after every year of study.

Highlights of the M.H.A. 2 Year Programme

The eligibility criteria for this programme is students with MBBS/BDS/BVSc/BSc (Nursing)/B.H.A. The course curriculum stresses very heavily on modern managerial tools and techniques, principles of public health, public administration, behavioural sciences etc. The students are offered four functional area specializations in Semester III and IV, namely, Financial Management, Human Resource Management, Marketing Management and Systems Management. The students have to undergo a summer training/administrative residency at some healthcare institution after the completion of the first year during which they have to complete some project work/dissertation.

Faculty

The Institute of Management Studies has a core faculty of twenty-two members. The faculty consists of doctors, engineers, computer experts, psychologists, mathematicians and historians. Apart from this the Institute draws good chunk of visiting faculty from industry, professions and healthcare sector.

Pedagogy

The pedagogy is a mix of traditional and modern educational methods. The management programmes are highly demanding, challenging and rewarding. Cases, traditional classroom teaching, project work, on-the-job training, role play, computer games etc, constitute the pedagogy. The faculty puts students to very hard work and demands on-time performance. Students are continuously assessed in terms of their academic performance. At the end of every semester there is a comprehensive end-semester examination.

Tulane University Collaboration

Today's world has shrunken a lot due to telecommunication and technological advancements. The world has really become a global village. In such a village, cross-cultural working, and hence

cross-cultural education is imperative. Keeping this in view, a consortium has been formed with Tulane University, New Orleans, a premier management school in the USA. The mission of the collaboration between Devi Ahilya University and Tulane University is to create a Centre of Excellence for producing hospital professionals who have the understanding of cross-cultural problems, who could serve our country in particular and healthcare delivery systems in general. Tulane University's School of Public Health and Tropical Medicine has got a lot of experience in the field of healthcare management education. Their experience and material through the collaboration shall be available to the students and a vast field will be available to Devi Ahilya University, Indore and Tulane University for joint research.

The objectives for the collaboration are as follows :

i. to create health professionals with understanding of cross-cultural problems;

ii. to develop teaching material and case studies;

iii. to develop short-term courses for working professionals;

iv. to conduct joint researches; and

v. to exchange faculty and students.

Long-term goals of collaboration would be launching of joint programmes and developing teaching material with a cross-cultural perspective.

Conclusion

A separate breed of healthcare administrators is the need of the Indian healthcare system, who can understand the technical language of the doctors, and at the same time are firmly grounded in the management skills, techniques and processes. Such a class of professionals will help run our healthcare system effectively and efficiently to ensure good health to the large masses of India, so that they are empowered to play an important role in the overall development of the country.

The hospital administration programme of the Devi Ahilya University, Indore with its good infrastructural facilities, dedicated faculty, excellent curriculum and pedagogy tries its level best to contribute its mite towards the achievement of the goal of "Health for All" by producing competent hospital administrators. ❑

The ISIS/SIS
Pioneer in International/Area Studies

M.S. Rajan*

The School of International Studies (SIS) of the Jawaharlal Nehru University (JNU) is the successor to the old Indian School of International Studies (1955-71). The present School (which joined the JNU in June 1970) and continuing the pioneering work of the old School initiated for the first time, a university-level programme in International/Area Studies.

When the old School (ISIS) was started by the Indian Council of World Affairs, there was no provision in most universities for a comprehensive programme of International/Area Studies; only, some (very few) provision, here and there, for a course or two on so-called International Affairs, which, in most cases, covered what one might call, an elementary survey of developments in international affairs since the first World War, including the working of the League of Nations and the United Nations. There never was an in-depth study of the rationale or course of these developments.

It was against this background that the old School (ISIS) came into existence. Initially (1955-61) the School was an autonomous college of the University of Delhi; since 1961, it became a Deemed University, under Sec. 3 of the UGC Act, in effect a University institution for all practical purposes. A unique feature of the old School (I think, unique not only in the Indian university system, but in the whole world) was that it was a postgraduate institution, with a one year course, leading only to research in a doctorate (Ph.D.)

The ISIS had a great difficulty in recruiting the faculty. For doing it, the authorities made many visiting/temporary appointments which included such distinguished scholars as Dr. K.M. Panikkar, Dr. Tara Chand, Professor Magbul Ahmed, Professor Aleem (AMU), Prof. A.K. Dasgupta, Professor Chatterjee, and Prof. Nagendra Singh. This was supplemented by many visiting appointments of well-known foreign scholars. Those included: Professors Nicholas Mansergh (U.K.), W.H. Morris-Jones (U.K.), Norman Harper, and Bruce Miller (Australia), Frederick Howard (Canada), Hans Morgenthau, W.F. Ogburn, Max Lerner, W.H. Stephenson, Dexter Perkins, Harold E. Davis, Vera M. Dean, Phillips Bradley, Quincy Wright, Clovis Maksoud (all U.S.); and K. Enoki, M. Inoie, Chau kuo-Chun, S. Iwamura (all from Japan).

One of the functions of this (temporary) faculty was to train young Indian scholars (called "Special Fellows") in different fields both in India and abroad for regular (permanent) appointments. This category of young Indians included initially (apart from the present writer), M.S. Venkataramani, Girija Mookherjee, Anirudha Gupta, M.S. Agwani, H.S. Chopra, Vishal Singh, P.A. Narasimha Murthy, Vidya Prakash Dutt. Such scholars usually became the pioneering faculty in the old School; many of them remained in the SIS faculty and served as the pioneering faculty of various departments/centres. Many of them rose to become Professors, and some of them are still functioning in the SIS faculty. Among others Sisir Gupta (who died some years ago) initiated (after the ISIS joined the JNU) a new field of study, Diplomatic Studies, Professor T.T. Poulose similarly started Disarmament Studies. The present writer who was earlier Professor of Commonwealth Studies (1962-71), initiated the field of International Organization (1971), and Professor Girija Mookherjee started European Studies.

The success of the old School was largely due to its high priority in building up a research library — i.e., not just current books, but also journals (from all over the world) and documentary materials and press clippings — these materials are a must for research, particularly on contemporary affairs. It is these research materials that helped faculty and students to write books and theses of international standards. Also, the library at Sapru House (which was a joint library of the ICWA and of the ISIS) was of great help to foreign visiting scholars. Indeed, at one time in the 1960s-1970s, there was a talk of making that library a national social science library. Unfortunately, that library was split when the ISIS joined the JNU in 1971.

One additional reason for the success of the ISIS was the great impression of foreign Foundation finances — mainly Rockefeller and Ford Foundations,

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[He was Director of the old and new Schools (1965-71)].

not only for building up the library but also for large-scale field trips for faculty and students, which are essential for research on contemporary affairs.

One remarkable innovation of the old School (which the SIS is continuing) is that most state governments, apart from the UGC, had endowed scholarships for young scholars from their respective states; the RBI, *The Hindu* newspaper, and some others also endowed one or more scholarships. These scholarships greatly facilitated young scholars in doing research beyond their Masters degree for at least three years.

This combination of scholarships and field trips greatly helped research for the doctoral degree in the ISIS, unlike in other universities in India. By the way, it is the near absence of these research facilities (plus library resources) that are largely responsible for Area Studies Programmes (financed by the UGC) not doing well.

Many new faculty members (who joined after the ISIS) also joined the JNU (i.e., after 1970) have also enriched the old (e.g., European Studies) or started new fields (e.g., Gulf Studies), Latin American Studies.

A consequence of these studies/research in these fields is that many (perhaps 500-600) students studying for M.Phil./Ph.D. have graduated from the old/new Schools and spread out to other universities and research institutions, throughout the length and breadth of the country. This contribution of ISIS/SIS to other universities and research institutions is a unique input into India's higher education system; unfortunately, few other institutions in India (barring the Jadavpur University, Calcutta) are supplementing the contribution of the ISIS/SIS.

One of the other contributions of the ISIS/SIS is the initiative of a publication programme, of books by the faculty (and occasionally of scholars trained by them) on International/Area Studies. This was an unusual programme for universities. Equally significant is the Quarterly journal, *International Studies*, started by the ISIS. Initially, it was meant for the publication of the research done by the faculty and students of the institution — in effect a "base organ". But, over the years, it has also become a forum for others (Indian and foreign) outside the School. It has now reached its 35th volume.

In fact, many of the faculty members of the ISIS/SIS are founders of new disciplines in International/Area Studies, both in the JNU and elsewhere. The contribution of the ISIS/SIS to the advancement of these studies is much higher than is apparent, because many of these young men/women have been unable to continue their expertise in later life, because of lack of library and other facilities; more importantly, many of them are unable to get teaching/research careers in International/Area Studies after leaving the ISIS/SIS; they are forced to fall back on their earlier training, such as political science or history. Consequently, their later training at the ISIS/SIS has gone to waste. In effect, the Indian university system has not expanded adequately in International/Area studies to enable ISIS/SIS products to maintain their teaching/research interests.

Despite the SIS faculty supporting/encouraging International/Area Studies outside the JNU, the UGC has not significantly supported the proliferation of these studies elsewhere in the country; the only notable exception is the establishment of a School of International Studies in the Central University in Pondicherry. Unfortunately, that School does not seem to develop adequately, for a variety of reasons. Of course, Area Studies have been widely promoted by the UGC. Again for a variety of reasons these study centres (some 20 of them) have made little, significant, progress. Consequently, outside the SIS (Jadavpur University, and perhaps also at Baroda University), International/Area Studies have not developed, significantly.

One possible reason for this could be that International/Area Studies have not been encouraged by the traditional disciplines, such as political science, history and economics in universities — either out of financial considerations or simple allergy to any new discipline by the traditional disciplinarians. A good example of the former reason is that few universities are able to finance field trips for scholars in International and Area Studies — especially the latter. Without such periodical trips, few specialists can remain up-to-date in their first hand knowledge of their respective fields of studies/research; mere study of books/documents is not enough. Unfortunately, this is partly true of scholars at the SIS also in recent years.

I personally think that lack of adequate funds (from the UGC and other agencies) is only partly true; the real reason is distorted priorities. Also, while geographical distribution of study centres is in principle, right, mere attachment only to it is quite inadequate; other considerations are equally important.

The fact of the matter is that with just comprehensive programme of studies at the SIS for the whole country (partly supplemented by the Jadavpur University Department) it is impossible for aspiring

scholars/students in adequate numbers to promote International/Area Studies in India. Neither the UGC, nor Parliament, nor the Government of India (Ministry of External Affairs, mainly) have shown much interest in the proliferation and development of these studies. The proliferation of these studies throughout the country is important — not just for intellectual reasons, but for the practical reasons of promoting public knowledge, discussion or assisting the government.

For instance, India is the pioneer of the policy of nonalignment and a founder member of the Nonaligned Movement (NAM). As such, is it proper for Indians to be, in effect, forced to read mostly Western books and documents, and reflect the views in those partly aligned foreign (aligned) states, which usually project their own particular (and different) national interests? With great technological developments in communications (including especially the Internet and the Television), India is being bombarded by news/views of foreign states' news media, and even scholarly opinions, generally reflecting their respective sources, both official and non-official. Surely, the input by India's diplomatic missions are not at all adequate for the Indian government to take decisions in India's vital national interests in foreign affairs (as in the case of many developed countries).

One particular lacuna in the higher education system of the country is the absence of a non-official forum of academics in International/Area Studies (such as these in fields like political science, history, sociology and economics) for discussion of common problems in promoting these studies. Such a forum would also hopefully help the UGC to consider the problems in the promotion of these studies and help to solve these problems. It might also help to coordinate/cooperate among the various study centres—both in terms of training scholars and recruitment. Alas! The academic community in these fields has not bothered about the idea. With on-going economic liberalization and globalization of the Indian economy, scholars trained in the SIS in International Trade and Finance might also be found by the government as well as Indian corporate sector to be useful, both in India and abroad. Indeed, one sad fact of Indian society is that the expertise of scholars trained in International/Area Studies has not been adequately used profitably by the government and non-official agencies. ❑

[The author is grateful to Prof. B.K. Srivastava (former Professor of American Studies at SIS, JNU) for comments on the original draft.]

UNIVERSITY OF CAMBRIDGE

CAMBRIDGE NEHRU SCHOLARSHIPS FOR INDIA

October 2000

The Nehru Trust for Cambridge University and the **Jawaharlal Nehru Memorial Trust,** in collaboration with the **Cambridge Commonwealth Trust,** offer up to **ten** scholarships annually (eight **Cambridge Nehru Scholarships** and **two Jawaharlal Nehru Memorial Fund Cambridge Scholarships***) to enable graduates from India to pursue a course of research leading to the degree of Ph.D. at the **University of Cambridge.**

Citizens of **India,** normally under the age of 28 (on 1 October 2000 who have a first class honours degree or its equivalent are eligible to apply. Applicants must be successful in winning an ORS award which pays the difference between the home and overseas rate of the University Composition Fee. ORS application forms will be sent to eligible candidates in due course.

Candidates appearing for their first degree examination in 2000 are not eligible for the scholarships. Those who have in addition a first class Master's degree or its equivalent may be given preference.

The scholarships, tenable for up to three years, will cover the University Composition Fee at the home rate, approved College fees, a maintenance allowance sufficient for a single student and a contribution towards a return airfare by the cheapest available route.

Further details and Preliminary Application Forms can be obtained before **17 August 1999** from the **Nehru Trust for Cambridge University, Teen Murti House, Teen Murti Marg, New Delhi-110 011.** Applicants should give full details of their academic qualifications and state that they wish to be considered for a Cambridge Nehru Scholarship. Preliminary Application Forms must be returned to the above address **NO LATER THAN 9 SEPTEMBER 1999.**

* Preference for the Jawaharlal Nehru Memorial Fund Cambridge Scholarships will be given to candidates who wish to pursue a course of research in the broad fields of *Science Policy, Technology and Global Restructuring, Philosophy and History of Science, Comparative Studies in Religion and Culture, International Relations and Constitutional Studies, Indian History, Civilisation and Culture, Interface of Social Change and Economic Development, Environmental Ecology and Sustainable Development.*

The selection of Cambridge Nehru Scholars and
Jawaharlal Nehru Memorial Fund Cambridge Scholars will be made in June 2000

Emerging Trends in Education, Teaching & Learning and Knowledge Management

Prof. R. Natarajan, Director, Indian Institute of Technology-Madras, Chennai, delivered the convocation address at the Fourteenth Convocation of the Bharathiar University, Coimbatore. He said, "We must embrace, not reject, the use of new technologies. We must create structures that will enable the Professors to have more time to interact with Students. We must build the educational enterprise around student outcomes, and purposefully evaluate achievement. Increasingly the focus will shift from those who provide courses and how many hours they are taught, to assessment of whether true Learning has occurred." Excerpts

Education

In the classical tradition, Education was not really toward preparation for employment, but in the post-industrial era, formal education is a pre-requisite for employment; educated and trained manpower is one of the major inputs for economic and social development. There is, therefore, close nexus between educational planning and manpower planning, and precise and up-to-date information is required on the type and level of higher education, and the quality of skills for different industry sectors.

The Nature and Scope of Education

'Education' has a wide connotation. There are divergent interpretations, on the basis of : Knowledge, Skills, Training and Experience. There is common agreement, however, that Education contributes to the individual's development and preparation for discharging his/her duties as a responsible citizen. It is identified as a conscious, deliberate and planned process designed to modify behaviour in a desirable and socially acceptable way to impart specific knowledge and skills.

The Goals of Education

There is a wide spectrum of goals or aims of Education :

* *Individual Aim :* to contribute to the development of the individual to make him/her self-reliant
* *Social Aim :* to provide education for : Citizenship, Social efficiency, Social service
* *Knowledge Aim :* acquisition of relevant knowledge
* *Moral Aim :* related to character formation
* *Vocation Aim :* deals with the preparation of individuals for contributing to economic development and national wealth through productive employment.

The Education Commission of 1964-66 proclaimed that Education should be related to the life, needs, and aspirations of the people; and that Education should be utilized as a powerful instrument of social, economic and cultural transformation necessary for realizing national goals.

The Evolution of the Modern University

Universities represent, along with the Church, the world's most ancient institutions. Universities have changed over the past millennium, but have not changed beyond recognition, and have successfully adapted to changing environments. Cardinal Newman defined the role of the University as dedicated to the pursuit of Knowledge for its own sake : "the high protecting power of all Knowledge and Science, of fact and principle, of inquiry and discovery, of experiment and speculation."

Two powerful forces have served to transform the purpose and self-image of the University :

* *Intellectual :* triumph of the natural sciences
* *Political :* rise of democracy and the demand for mass education.

Tertiary education has become the indispensable passport to a decent job in the post-industrialization society and Higher Education has become a sorting machine for employees. Higher Education has created thousands of academic jobs and 'sucked large amounts of public money'. Public funding demands greater accountability, and diminishes intellectual autonomy.

In the modern era, the University is not just a creator of knowledge, a trainer of young minds, and a transmitter of culture; but also a major agent of economic growth. "The Knowledge Factory is at the centre of the Knowledge Economy." Ideas and the ability to manipulate them count far more than the traditional factors of production. The University has become the nation's R&D lab; it is part of the "national innovation system" — an incubator of new industries in a technology-dominated economy.

The biggest single change in Higher Education over the past

two decades has been characterised as "massification". It is cynically remarked that "Universities are convenient parking places for the government to keep young people for a few years, so that they do not show up in the unemployment statistics!" The middle-class world-wide regards Education as the gateway to a secure future. Higher Education is seen to be a "good personal investment, which raises its beneficiaries' income later in life."

Table 1 provides a comparison of the University — then and now.

Table 1 : The University Then and Now

Then	*Now*
• Dedicatd to the pursuit of knowledge for its own sake.	• Producers of useful knowledge; created on utilitarian grounds. e.g., America's landgrant colleges
• The preserve of a small elite.	• Rise of democracy, and the demand for mass education.
• Defining characteristic : intellectual autonomy	Public funding demands greater accountability
• Support largely from private donors.	• Support largely from government sources.
• Main activity : Teaching and Research.	• Main activity ; in addition, sponsored research and consultancy.
• High teacher : student ratio.	• Low teacher : student ratio.
• Good teacher-student interaction.	• Teacher-student interaction inadequate.
• Education for intellectual reasons.	• Education for employment.

The Role of the University in the Post-IT Revolution and Information-Explosion Era

It is hard to agree on what an educated person should know. In recent times, the Internet has developed 'institution-transforming potential'. Peter Drucker, 'a Management Guru with a track record of getting some big things right', has predicted that 'IT will bring about the demise of the University, as currently constituted". Distance learning has the possibility to deliver good and inexpensive higher education beyond a physical campus. There are several recent examples of ambitious initiatives in the U.S. :

- Western Governors' University — a virtual regional University.
- The Global Network Academy.
- The World Lecture Hall — an Internet Website organized by the University of Texas.
- Athena University — founded in 1995, as a private sector attempt to build a wholly new Virtual University from scratch; it offers a variety of courses — traditional in content, but delivered via the Internet.
- University of Phoenix — a 'for-profit' institution.

Academics insist that there is no substitute for face-to-face contact between the teacher and the taught. Open Universities rely on a network of regional tutors, and on-campus summer schools, to complement the distance-learning element. There is an important question which deserves to be posed : 'How effective is this desirable interaction in traditional class-room instruction?'

The new paradigm to describe the modern University is in terms of a 'Core and Cloud University', comprising Departments and Centres. Lewis Coser, an eminent sociologist, proposed in 1965 that the "modern University has become an indispensable part of a civilised society, a place that provides salaried intellectuals with a milieu conducive to the exchange of ideas, and, uniquely, a licence to disagree with those who pay them!"

For as long as we know, formal education is regulated in two ways :

- Access is controlled by requiring students to come to college to receive education.
- Individuals and institutions providing instruction are to be credentialed or accredited.

These controls were justified, since they ensured the quality of instruction, and the Degree represented value addition to

the student. In the current scenario, characterized as the Information Era or the Digital Age, it would be impossible to control access to and delivery of educational services as in the past. As information sources become ubiquitous, and flow freely to students wherever they are, it would be impossible to credential/accredit all of them.

In the emerging scenario, there is an urgent need to develop sophisticated assessment techniques to measure and certify Learning and Competency. We must embrace, not reject, the use of new technologies. We must create structures that will enable the Professors to have more time to interact with Students. We must build the educational enterprise around student outcomes, and purposefully evaluate achievement. Increasingly the focus will shift from those who provide courses and how many hours they are taught, to assessment of whether true Learning has occurred.

It is interesting to note that ABET, the Accreditation Board for Engineering and Technology (of the U.S.), has overhauled its system of Accreditation recently. Over the years, ABET evaluators became excessively dependent on rules and criteria, finding it easier and less time-consuming to evaluate a programme's compliance to these than to evaluate innovative curriculum responses to a changing world. A number of Educators called for less preoccupation with quantitative criteria, and prompt response to the fundamental challenges facing Engineering Education in the XXI century. The 1992 Accreditation Process Review Committee helped outline a 'quality-oriented, flexible accreditation system that encourages diversity and does not inhibit innovations in Engineering Education'. At the core of the Engineering Criteria 2000 (EC 2000) is an outcomes-assessment component, which calls for :

- detailed, published educational objectives that are consistent with the Institution's mission and EC 2000.
- a system of ongoing evaluation that demonstrates achievement of these objectives, and uses the results to improve the effectiveness of the programme.

Electronics and the Future of Education

Andres Odlyzko of AT&T Labs has explored the role of Technology in shaping the future of Education, and the place of Teacher in this scenario. Education is recognized to be "primarily a process of getting students to absorb new ideas and ways of thinking, and requires extensive social interaction". Even if future "3-D holographic projections and high-bandwidth networks could make distance learning so effective that live lecture could be phased out", "teachers would still be employed to provide interactive instruction". "Technology can replace some teachers in their present roles. Hence, if all we cared about was to produce what the current system does, we could indeed operate with fewer people. However, we are unlikely to do that. New demands will arise to take up the slack. There has always been desire for more personal attention from teachers than could be met."

"The main reason for expecting no cutbacks in teacher ranks is that human contact is valued very highly." "When people reminisce about their school days, teachers are mentioned far more frequently than textbooks or buildings. Close human contact appears to improve the perceived quality of instruction, whether that improves test performance or not."

On the matter of displacement of current functions by future technology, he points out that inspite of the potential to effect great savings from elimination of physical trips by deploying video-and-voice-conferencing services, travel budgets have not decreased. "Displacement of a function by technology can produce net savings in time or money. Dishwashing machines have reduced time spent cleaning dishes at the kitchen sink. In that case, the goal was specific, new technology was able to satisfy it, and in any case, who enjoyed washing dishes? On the other hand, medical care costs have been rising, in spite of progress in technology." "Historically, education has been more like medical care than like dishwashing. As countries have become wealthier, they have devoted an increasing fraction of GDP to education." "These increases were driven by the rising wealth of the country and the need to prepare for the more sophisticated jobs generated by the economy."

"If every institution, from Podunk Community College to Harvard, uses the same holographic projections of the world's best lectures, and has access to the same digital libraries, how will Harvard differentiate itself", he asks. "The most likely answer is through stress on the quality of its teachers in their other roles. As with business travel, the levelling of technology of a part of the competitive landscape is likely to lead to greater emphasis on the human element, even when the results are hard to measure."

What will be the future goal of Education, and how do we prepare students for the future? "If education were a simple matter of teaching the three Rs., the future might be different. However, we do not even have a clear idea of what education is supposed to accomplish." "Education is supposed to prepare an individual for life, but we do not have a clear model of how it does that. With rapid change, we do not even know what life to prepare for."

Teaching and Learning Process

Good Teaching

Good Teaching is considered to involve five basic components :

- Instructional methods that facilitate student involvement.
- The right content.
- Instructional strategies that maximize teaching efficiency and student learning.
- Good attitudes on the part of the teacher and student.
- Promotion of life-long learning skills.

Principles for Learning in the XXI Century

The OECD Centre for Eductional Research and Innovation has enunciated the following Principles for Learning in the XXI Century :

a) Learning will become an essential part of everyday activity.

b) Access will need to become as universal as possible.

c) Learning technologies will need to respond flexibly to learner needs.

d) Learning suppliers will need to adapt their ways to meet the changing needs of clients.

e) Governments will need to play an active role in supporting the learning infrastructure but should not expect the control of the learning agenda.

f) Learning will need to be a collaborative enterprise.

The UNESCO International Commission on Education for the XXI Century has identified four pillars of Learning :

- Learning to live together.
- Learning to know.
- Learning to do.
- Learning to be.

This Report has also identified several tensions to be overcome :

- The tension between the global and the local.
- The tension between the universal and the individual.
- The tension between tradition and modernity.
- The tension between long-term and short-term considerations.
- The tension between the need for competition and the concern for equality of opportunity.
- The tension between the extraordinary expansion of knowledge and the human beings' capacity to assimilate it.
- The tension between the spiritual and the material.

Technology-Enhanced Learning

There is considerable hope and some positive evidence that Technology can expand and improve Education at all levels, with special reference to the design and content of instructional materials, delivery, assessment and feedback. The term "Educational Technology" has been interpreted in two ways :

- Technology in Education.
- Technology of Education.

The former is the means, while the latter refers to the core of what the ends should be — Learning : how it occurs and how Technology may be deployed to enhance Learning : Technology-enhanced Learning. It is firmly believed by many Educators that the full potential offered by Educational Technology media and devices is yet to be realised.

In ET and TEL, the role of the Teacher will be expected to be quite different from what it is in traditional classroom teaching. In the latter, the Teacher is the Author, Playwright, Actor and Director, with the Actor's role assuming the major significance; while in the former, he will be more of a Director and a Coach/ Facilitator. One of the principal distinctive features of the new ET/TEL system will be the opportunities provided for individualized, self-paced learning, which caters to the individual abilities and aptitudes of the individual learners, and the possibility of one-to-one interaction with the teachers. This will also offer better opportunities to provide feedback and permit effective assessment of learning.

It is interesting to note in this context that the futuristic ABET Criteria 2000 focus more on learning outcomes than on curricular contents and resource availability. It is also necessary

to recognize that as is the case with Appropriate Technology, we need Appropriate Educational Technology, for achieving success through strategies which should take into consideration local needs, circumstances and resources.

Paul Goodman has provided a framework to categorize TEL activities. Using variations in space and time, he provides a matrix of learning strategies (Table II).

Table II : Framework of Technology Enhanced Learning Activities

		TIME	
		Same	*Different*
Space	Same	Classroom	Computer Based Learning
	Different	Distance Learning	Asynchronous Learning

Where space and time are the same, one looks for TEL in the traditional classroom setting. In the distance learning mode, there exist many types of delivery mechanisms (e.g. satellite, internet), and many different types of teaching formats; leading to many different types of distance learning. Computer-based systems provide students an opportunity to use software systems which many instruct students in learning, for example, algebra, piano, and many other subjects. The asynchronous cell refers to systems that permit people to learn at any time and any place; these often include parts of other cells. Newly-evolving asynchronous learning networks (ALN) eliminate the instructional impediments of space and time, while providing a degree of student-faculty interaction and collaboration that is truly unique.

Knowledge Management

While the Academic has more to do with Knowledge Creation, Dissemination and Diffusion, the Corporate Sector is more concerned with Knowledge Application, Utilisation and Management. In this section, we will focus on the latter set of issues.

The Emerging Information Age or Knowledge Era

It is claimed that "success comes to the companies that have the best information or wield it most effectively — not necessarily the companies with the most muscle." Wal-Mart, Microsoft and Toyota are quoted as examples of companies that achieved success because they had intellectual capital. It has become particularly significant in modern industry and commerce dominated by market forces, information technology, knowledge industry, etc. Wealth creation is increasingly dependent on knowledge and information; achieved by knowledge workers working for knowledge companies. The fundamental sources of wealth in the new Information Age economy are knowledge and communication rather than natural resources and physical labour.

"Every country, company and individual depends increasingly on knowledge", exemplified by patents, processes, skills, technologies, experience, etc. It is interesting to note that "air travel has become two different industries : the flying industry, which is marginally profitable at best, and information-about-flying industry", which is highly profitable.

Nicholas Negroponte, the Visionary Director of the Media Lab. in MIT, proposes that "the world of atoms — tangible, physical reality — is giving way to world of bits — ethereal electronic impulses." "In this cyberspace future, PCs become vending machines, to which people turn for everything from making love to buying stock in an initial public offering."

The Scope of the Information Sector in the Economy

A new classification system has been proposed for the Information Age, dividing the Economy into three sectors :

- *Goods* : Most manufacturing, along with mining and utilities.
- *Services* : "people-oriented" entities, such as banking, elementary and secondary education, health care, hotels, etc.
- *Information* : advertising, communications, computers and software, higher education, entertainment, publishing, the securities industry, etc.

One of information's most powerful advantages is its capacity to wipe out inventory. A good example is the comparison between the encyclopaedia that contains precisely what one wants. Companies kept extra stocks on hand because they did not have precise information about their customer' needs. The Japanese invention of the Just-in-Time concept : "instead of holding parts just in case, summon them to arrive just in time", was the result of the need to overcome the shortage of space for inventory!

The Knowledge Company and the Knowledge Worker

Knowledge has become the principal ingredient of what people make, do, buy and sell. It, therefore, becomes important to 'managing' it. Companies strive to be called "learning organizations", incorporating the corporate culture that cherishes 'continuous improvement'; 'perpetual learning machines', attempting to transform blue-collar workers into knowledge workers. Not only are more people engaged in knowl-

(Contd. on page 22)

National Expenditure on Research and Development at Current Prices for Selected Countries

(Millions of US Dollars)

Country	Current Prices								
Australia	1795.2 (1981)	1918.6 (1985)	2176.5 (1986)	2483.1 (1987)	3271.2 (1988)	3972.0 (1990)			
Canada	3407.0* (1981)	4354.7 (1983)	4783.9 (1985)	5376.9 (1987)	7312.5 (1989)	8000.0 (1991)	8510.0 (1992)		
Japan	27126.0 (1981)	30233.6 (1983)	37269.6 (1985)	68007.7 (1987)	82930.7 (1988)	102231.0 (1991)			
Germany	16970.0 (1981)	16652.2 (1983)	16820.3 (1985)	31853.6 (1987)	33974.0 (1989)				
France	11494.4 (1981)	11788.2 (1985)	16352.9 (1986)	20190.3 (1987)	21929.0 (1988)	28907.0 (1991)			
U.K.	11890.0 (1981)	9974.2 (1983)	10165.8 (1985)	12670.8 (1986)	16873.5 (1989)	20998.0 (1991)			
U.S.A.	55889.6 (1979)	63810.0* (1980)	86206.6 (1983)	116796.0 (1985)	139255.0 (1988)	151544.0 (1990)	164493.0 (1992)	169100.0 (1994)	171000.0 (1995)
India	1225.4 (1982)	1596.7 (1984)	1979.1 (1986)	2405.2 (1988)	2270.4 (1990)	1930.8 (1992)	2172.48+ (1994)		
Israel	680.5 (1981)	800.7 (1982)	1005.4 (1983)	772.8 (1985)	1152.5 (1990)				
Pakistan	250 (1982)	230.7 (1983)	273 (1984)	263.7 (1985)	320.8 (1987)				
Republic of Korea	348.6 (1980)	801.5 (1983)	1327.7 (1985)	1728.2 (1986)	3208.6 (1988)	6391.0 (1992)			
Brazil	1150.0 (1978)	1459.1 (1982)	1168.0 (1983)	801.3 (1984)	869.4 (1985)				
Nigeria	183.0 (1983)	129.9 (1984)	92.8 (1985)	45.8 (1986)	21.5 (1987)				
Philippines	82.9 (1980)	46.3 (1983)	36.7 (1984)						

Note: 1. Figures in brackets indicate the year.

2. *Provisional/Estimated figures.

3. @+ The data relates to financial year 1994-95. Source for exchange rate is Economic Survey, 1995-96.

4. Canada — Data do not include Social Sciences and Humanities; from 1975 these are only excluded from the productive sector (integrated R&D).

5. Japan — Not including data for Social Sciences and Humanities in the productive sector (integrated R&D)

6. Germany — Germany refers to F.R.G. for 1985 and 1987 total expenditure includes respectively 470, 615, 390 and 664 million DM for which a distribution between current and capital expenditure is not available. Not including Social Sciences and Humanities in the productive sector.

7. U.K. — For 1981, 1985 and 1989 data do not include funds for R&D performed abroad. Not including data for Social Sciences and Humanities, except for 1989.

8. U.S.A. — Not including data for Law, Humanities and Education. Total expenditure does not include capital expenditure in the productive sector. In the 1980, capital expenditure for R&D in private non-profit organisations is excluded.

9. Republic of Korea — Not including Military and Defence R&D. Data for 1980 exclude Law, Humanities and Education; From 1981 not including Social Sciences and Humanities.

10. Brazil — Not including private productive enterprises.

11. Nigeria — Data relate only to 23 out of 26 national research institutes under the Federal M/o Science & Technology.

12. Pakistan — Social Science and Humanities in the higher education and general service sectors are not included. Not including Military and Defence R&D.

13. Israel — Not including data for Humanities and Law financed by the universities current budgets.

14. Philippines — Not including private non-profit organisation in 1980.

15. Available data for various years for different countries are reported.

16. Conversion of national currency into US$ is based on Statistical Yearbook (1995), UNESCO.

Research and Development Expenditure as percentage of Gross National Product for Selected Countries

(Percentage)

Country	Research & Development Expenditure/Gross National Product							
Australia	1.0 (1981)	1.3 (1985)	1.4 (1986)	1.3 (1987)	1.3 (1988)	1.4 (1990)		
Canada	1.2 (1981)	1.4 (1984)	1.5 (1985)	1.4 (1987)	1.4 (1989)	1.6 (1992)		
Japan	2.4 (1981)	2.6 (1983)	2.8 (1985)	2.8 (1988)	3.1 (1991)			
Germany	2.5 (1981)	2.5 (1983)	2.7 (1985)	2.9 (1987)	2.8 (1989)			
France	2.3 (1985)	2.3 (1986)	2.3 (1987)	2.3 (1988)	2.4 (1991)			
U.K.	2.3 (1981)	2.2 (1983)	2.3 (1986)	2.3 (1989)	2.1 (1991)			
U.S.A.	2.4 (1980)	2.5 (1981)	2.8 (1986)	2.9 (1988)	2.7 (1990)	2.4 (1994)	2.4 (1995)	
India	0.8 (1982)	0.9 (1984)	0.95 (1986)	0.96 (1988)	0.85 (1990)	0.83 (1992)	0.81 (1994)	
Indonesia	0.3 (1984)	0.3 (1986)	0.2 (1988)					
Republic of Korea	0.6 (1981)	0.9 (1982)	1.1 (1983)	1.8 (1986)	1.9 (1988)	2.1 (1992)		
Brazil	0.2 (1974)	0.6 (1978)	0.7* (1982)	0.4 (1985)				
Nigeria	0.4* (1970)	0.3* (1977)	0.1 (1987)					
Philippines	0.2 (1975)	0.2 (1980)	0.2* (1982)	0.1 (1984)				

Note: 1. Figures in brackets indicate the year.

2. Available data for the various years for different countries are reported.

3. *Estimated or Provisional figures.

4. Germany — Germany refers to F.R.G.

5. Nigeria — 1970 figures refers to expenditure as percentage of Gross Domestic Product.

Source: *Science & Technology Pocket Databook 1995*, Department of Science & Technology, Govt. of India, New Delhi, 1997.

(Contd. from page 19)

edge-based work, but the knowledge content of all types of work is increasing.

For most organizations, it is estimated that the ratio of the value of intellectual capital to the value of physical and financial capital is between 5 to 1 and 16 to 1.

Knowledge Classification

Samuel Johnson wrote : "Knowledge is of two kinds; we know a subject ourselves, or we know where we can find information upon it."

Systems Engineering talk about 'data warehouses' and 'knowledge management architecture'. It is pointed out that "Information is not all of equal value." At the bottom of the pyramid is 'data'; at the next higher level is 'information', a context into which the data are placed; at the next higher level is 'knowledge', a conclusion drawn from the data and information; still higher is 'wisdom'.

There is an opposite point of view too; that knowledge cannot be slotted into a data-to-wisdom hierarchy, and 'one man's knowledge is another man's data'. It is also stated that 'like Beauty, Knowledge exists in the eyes of the beholder'. It appears that 'Knowledge assets, like money or equivalent, exist, and are worth cultivating, only in the context of strategy".

'Soft' knowledge is often hard to define, because it is tacit rather than explicit, and hence hard to explain or even see. People know more than they realize, and through their lives they develop vast repertoires of skills, information, and ways of working, that they have internalized to the point of obliviousness. As with individuals, organizations contain vast amounts of tacit knowledge-intuitions, rules of thumb, mindsets, and unconscious values. The important virtue of tacit knowledge is that it is automatic, requiring little or no time or thought. A good example is provided by a typist, whose knowledge of the keyboard is tacit, is much faster than one who has to hunt and type. On the other hand, tacit knowledge has three drawbacks : it can be wrong; it is hard to alter; and it is difficult to communicate.

Intellectual Capital

Intellectual Capital — The New Wealth of Organizations is the title of a recent book by Thomas A. Stewart. There are several descriptions of "Intellectual Capital" :

- The sum of everything everybody in a company knows that gives it a competitive edge.
- It is intellectual material — knowledge, information, intellectual property, experience — that can be put to use to create wealth.
- Collective brainpower, knowledge assets.
- Organizational intelligence — smart people working in smart ways.
- Accumulated knowledge and know-how that is the source of innovation and regeneration.
- Ability, skill, and expertise, embedded in human brains.
- Knowledge that exists in an organization that can be used to create differential advantage.
- Intellectual material that has been formalized, captured, and leveraged to produce a higher-valued asset.
- Source of wealth for individuals as well as for organizations — and held in common between them.

Some Perceived Adverse Consequences of the Information Revolution

It is not often realised that the Industrial Revolution, which preceded the Information Revolution, served to expand the middle class and raised living standards for the entire population eventually, whereas, at first, it actually widened the already yawning gap between the rich and the poor. A similar trend is being seen today as the consequence of the Information Revolution.

While some people are fearful that the new Knowledge economy will transform the old and reduce its relative importance, and eventually destroy it, it is pointed out that the Industrial Revolution did not end Agriculture, and similarly the Information Revolution will not end Industry, because we will continue to need industrial products.

Computers have been blamed for loss of income among non-management factory and office workers, but it is found that the opposite is true : the more computers are used in an organization, the higher the pay of its employees.

Concluding Remarks

I have tried to capture in this Presentation the principal features of the Emerging Trends in three different Sectors, viz., Education, Teaching and Learning, and Knowledge Management. While any Future is unpredictable and uncertain, the new Century, nay the new Millennium, ahead of us, is sure to be full of surprises — both pleasant and unpleasant — ; challenges, as well as opportunities. Let us march ahead with Confidence, Preparedness and Wisdom. ❑

Science in Next Millennium

Scientists from all over the world gathered in Budapest to look back at the century of scientific creativity and to investigate apprehensions and opportunities that have resulted from it.

The World Conference on Science organised by UNESCO took the debate beyond the scientific community and involved the diverse stakeholders in science. It took place amid the raging debate on science and ethics at a time when the governments were having to decide what lines of research can and cannot be pursued by the scientific establishment. Even as the scientists gathered in Budapest, mass media was confronting the lay majorities with scientific data on controversial work related to genetically modified food and human cloning. There is also a growing realisation that it would be irrational to depend entirely on science and technology to solve all the problems of the mankind.

Apart from an international plan of action for using science for sustainable development, the conference grappled with issues of equity in science, access to science and conservation and promotion of indigenous and civilisational knowledge systems. However, the final declaration and the framework of action reflected a compromise as nations do differ on issues that have a bearing on the proposed international plan for action to use science for sustainable development.

The usual north-south divide was evident in various national presentations. This was particularly so with regard to issues related to access to science and technology, movement of scientific workers, sharing of research results, traditional knowledge and the patents systems and sustainable development.

The President of Hungary, Mr. Arpad Gonez, at the opening session, called for a common vision of science's relationship with society. It was time to take stock of the achievements and shortcoming of science, he said, recalling that when he was born, Einstein's theory of relativity was the intellectual toy for a dozen of ingenious physicists. However, while astronomers capture the past, we must question the future, he said.

Hungary with its new experience of the arrival of foreign multinational and reduced state support for science sounded a timely warning to countries such as India implementing economic reforms. He said foreign capital which had started to benefit Hungary, would always be profit-oriented and would support only those branches of research which would be marketable. It would never support local scientific education, innovation or inter-connected research topics which followed from one another. The state would have to be an ally of research, he said. Mr. Federico Mayor, director general of UNESCO, who is a scientist, said the scientific community must face up to the fact there was no longer an automatic assumption that benefits would flow from undirected scientific research.

Dr. M.S. Swaminathan, President of the MSR Research Foundation, said greater state support was called for public good research designed to ensure sustainable food and water security. This would involve the effective use of the gene, ecotechnology and information revolutions.

Cipher Code for Navy

The Indian Institute of Technology (IIT), Kanpur has developed a new generation cipher code for the Indian Navy. The breakthrough would provide a technological edge to defence communication. Christened *Trinetra*, the cipher is a modern computer-based code language system which can digitalise long, alphabetic messages within seconds, the sources claimed.

Indian defence services, they said, have actually been using an outdated code discarded by most of the developed nations. The system, known as book cipher system, has long been replaced by what is known as the block cipher system for transmission of sensitive and classified information. *Trinetra* is a block cipher system which converts letters into blocks and which can also digitalise the voice of the sender.

The project was handed over to the Computer Science Department of the IIT two years ago when the Indian Navy approached the institute for developing a new code. A team led by Dr. Manindra Agarwal developed and fine-tuned the code, which is already being used by the Naval Command on the eastern coast. While the project took one-and-a-half years to develop, the system

is being perfected in the second phase of the exercise. The army and the air force too have evinced interest in the system, IIT sources confided.

While most defence establishments in the world have been using the block cipher system developed and marketed by the U.S., the Indian defence establishment wanted something different so that breaking the code could become more difficult, if not impossible. "This is the first time that this system has been developed outside the U.S. and in the second phase of the ongoing project, a hardware card is being developed to ensure greater safety to the code," Dr. Agarwal said. He said he was confident *Trinetra* will prove to be a hard nut to crack.

Young Scientists Fellowship Scheme

The Department of Science and Technology, Government of India, has begun its annual exercise of scouting for scientific talent in frontline areas to provide them an opportunity to visit international institutions.

The "Better Opportunities for Young Scientists in Chosen Areas of Science and Technology" (BOYS-CAST) fellowship scheme has benefited more than 250 young scientists from around the country.

The emerging areas identified for the fellowship scheme for 1999-2000, for which the selection process is about to begin, included atmospheric and earth sciences, chemical sciences, engineering, life sciences, mathematical and physical sciences. Specific areas in these sciences have also been chosen as the "frontline" sectors for fellowship.

From 1988 (when the scheme was launched) to 1999, 29 per cent of the fellowships have gone to life sciences, 20 per cent to engineering and 19 per cent of physics. As for the distribution, 30 per cent were from the universities, 28 per cent of the fellows were from institutions, 14 per cent from colleges and 12 per cent from the IITs.

As many as 98 of the fellows went to the U.S. for the exposure, with another 49 going to the U.K. and 15 to Germany. Canada received 11 and Japan 8.

In a bid to review the scheme and effect some changes, the department invited those who had participated in the programme to provide an assessment and make suggestions to fine tune it.

Based on their reports, the advisory committee made some key recommendations. These included : enhancement of the scheme to include more scientists every year, increase in funds to provide for travelling in the the host countries to attend conferences or visit institutes of interest and provision of bench fee where applicable. A suggestion to launch a newsletter was also accepted and the first issue was brought out recently. The department has approved the other recommendations as well and incorporated them in the guidelines for the future.

Those interested in the scheme could get more details from the web at the following address : www.boyscast.org

UN Books on Offer

International Association of Educators for World Peace are distributing two United Nations books (1) *A Vision of Hope : The Fiftieth Anniversary of the United Nations*, and (2) *Human Rights : A New Consensus*.

Vision of Hope takes a fast-paced look at the many facets of UN operations focusing on the vital role that the organisation plays in everyday life. It records 50 years of service to the international community, highlighting the UN's hopes and aspirations for the future. Its contributors range from eminent scholars to on-the-spot reporters who present a highly readable and informed overview of this remarkable institution.

Human Rights is a resource book that includes a wide range of contemporary material on human rights, democracy, development and peace aims to sustain the momentum created by the United Nations World Conference on Human Rights, held in Vienna in June 1993.

The books are published by The Regency Press Corporation, London with the financial assistance of United Nations under the scheme of the UN-Regency Corporation Project.

The books are being distributed free of charge to the educational institutions. Therefore, principals of the colleges, directors of the institutes, librarians of the universities and the courts and government libraries may request for one copy of the each book for their libraries. Vice-Chancellors, editors and Senior Journalists of the Newspapers may also receive the books for their personal libraries. The books are available from Dr. Surya Nath Prasad, International Secretary-General, International Association of Educators for World Peace (IAEWP), 216, Laxminagar, Nagpur-440 022. Fax : (0172)524079/524759.

Those who want the books by Post will have to pay the actual charges for packing, postage and handling only.

New Disciplines at NIS

The Sports Authority of India (SAI) has increased the number of sports disciplines from the existing 10 to 16 for this (1999-2000) academic session at the Netaji Subhash Institute of Sports, Patiala. The session will commence from July 1, 1999.

The five new disciplines are badminton, basketball, football, swimming and volleyball.

Master Tutor Website

An on-line eductional website offering tutorials on the Indira Gandhi National Open University (IGNOU) courses is reported to have been launched.

The website is designed to be a 'test-prep' for IGNOU's highly sought-after BIT and ADIT courses.

The website has a huge database of questions from all the subjects included for this entrance test. The student, once registered, can have access to the 'Question Database' from any place in the world.

The tutorial offers a set of questions so that the student can give his answers online and evaluate himself on a pre-set score pattern. To help the student, the website will also point out the mistakes committed by him.

The tutorial includes question banks in English, logical and reasoning tests, numerical aptitude tests, data analysis and aptitude for self-learning. Each section has numerous sub-sections that unfold in the window explorer like format.

A free demonstration is available on the site for the prospective students to try before submitting the registration online. The site boasts of on-line crosswords, BBS and chat facility for students. The web address is http://www.mastertutor.com

Devi Ahilya Honours a Martyr

It would perhaps be the first time that a university vice-chancellor will go to a student's door to hand over his degree posthumously.

Rajendra Kumar Yadav, who appeared for his BA (Final) examination before joining Operation Vijay, is dead. He was cremated at his native Dhudhariakhedi village in Khargaon district with full military honours last Wednesday.

The vice-chancellor of Devi Ahilya University, Dr. Bharat Chhaparwal has revealed Yadav passed the examination in second division. He would go over to Yadav's home to personally hand over the degree to his family, the VC said.

The university decided to introduce a medal in Rajendra's name, to be given to a deserving student every year.

New Deptts at Tezpur Varsity

The University Grants Commission is reported to have permitted Tezpur University to open six new departments during the Ninth Plan. The new departments include Rural Development, Business Economics, Mass Communication, Women Studies, Communicative Hindi and Shankardev Study in addition to the existing eleven courses.

Water, Sanitation and Public Health

A national seminar on Water and Sanitation in relation to public health was recently organised by the Global Science Academy, an NGO serving Science, Environment and Society, Basti (U.P.). The purpose of the seminar was to bring together participation from a wide variety of interests to explore possibile solutions to important water and sanitation related problems. The methodology included lectures, sharing of ideas, discussions and creative interactions.

The seminar was conducted in four technical sessions and the topics discussed included i) Water and Microbial contamination; ii) Water borne health problems and their control; iii) Sanitation and prevention of infectious diseases; iv) Problems of Water and Sanitation : role of government, scientists and people.

Inaugurating the seminar, Prof. Girish Chandra Saxena, Vice-Chancellor of Dr. R.M.L. Avadh University, Faizabad, appreciated the appropriateness of the topic and said that most of our population suffered from water related diseases, poor sanitation and polluted air and thousands of children died everyday due to this problem.

Swami (Major) Ranjeet, President of World Saviours, New Delhi, who presided, stated that after fifty years of independence and forty five years of planned development, almost one lakh villages had no potable water at all.

Mr. Gurubachan Lal, IPS DIG Basti range and Dr. M.L. Diwedi, Additional Commissioner Basti, addressed the seminar as Guests of Honour.

Dr. N.K. Sinha of Zoological Survey of India, Dehradun, in his paper, said that the contamination of water by people, civic and industrial waste, agricultural pesticides and fertilizers was a serious threat for the earth's entire hydrographic system which if not controlled may jeopardize the very existence of mankind.

Dr. V.N. Sharma of District T.B. Hospital, Basti, while presenting his paper, said that the diseases spreading as a result of microbial contamination of water included cholera, acute gastro-enteritis, diarrhoea, dysentry, typhoid, viral hepatitis A and E, poliomyelitis which were caused by enteric bacteria and viruses.

Renowned environmentalist Dr. Jaswant Singh said that because of population pressure, the quality of water and sanitary conditions were deteriorating in almost all cities of the country.

Dr. R.S. Mishra of Horticulture Experiment and Training Centre, Basti, speaking on the role of integrated pest management on conservation of surface and ground water in earth said that to preserve the ground water, lesser use of chemical fertilizers alongwith insecticides and fungicides should be made.

Speaking on the occasion Mr. Anil Pratap Singh, convener of the seminar and the Secretary Global Science Academy said that the garbage which being dumped in and around the habitated area without any treatment led to various kinds of environmental pollution that not only caused ground water and air pollution but also became an ideal site for breeding of insects, rodents and other vectors of diseases.

NSS Award for Bangalore Varsity

Bangalore University has been adjudged as the best university in the country for rendering community service and has been awarded the Indira Gandhi NSS Award by the Department of Youth Affairs and Sports, Govt. of India.

Prof. A.M.R. Kotraiah, University Programme Co-ordinator, bagged the "Best Co-ordinator" award while Ms. K. Roopashree of the BMS College of Women bagged the "Best NSS Volunteer" Award.

The award was presented to Vice-Chancellor Dr. K. Siddappa, and Prof. A.M.R. Kotraiah in the National Award Ceremony by Union Minister of State for Youth Affairs, Sports and Culture Development Uma Bharathi in New Delhi recently.

MCI Caution on Private Colleges

The Medical Council of India has cautioned students seeking admission into private medical college in the country as well as in Russia, Nepal, Bulgaria and West Indies.

Dr. C.L. Venkata Rao, member of Medical Council of India said that certain advertisements were being published in newspapers inviting applications for admission into private medical colleges which were unrecognised by the Medical Council of India.

As per the Medical Council of India regulations, private agents or organisations were not authorised to released advertisements seeking admission under the Non-Resident Indian quota. Only the private medical colleges were expected to advertise in the papers on behalf of the management, he explained.

Students seeking admission in medical colleges in India and any foreign country have to fulfil the eligibility criteria for admission into the MBBS course as prescribed by the Medical Council of India.

News from Agricultural Universities

Land Use Pattern in Tamil Nadu

A study on changes in the agricultural land use pattern in Tamil Nadu will be carried out at a cost of Rs. 3 lakhs by the Tamil Nadu Agricultural University (TNAU).

Dr. P.C. Sundara Babu, Registrar, TNAU, said the State Planning Commission had funded the study, which will be carried out by the Centre for Agricultural and Rural Development Studies (CARDS), TNAU.

He said the proposed study would also identify the institutional, social and economic factors that had influenced the changes in land use and cropping pattern in wet, dry and semi-dry agricultural production environments in the State.

Dr. C. Ramasamy, Dirctor, CARDS, will be the Principal Investigator for the study, and Dr. M. Chandrasekaran, Associate Professor of Agricultural Economics, will be the Co-principal Investigator.

AIU NEWS

IUSB Annual Meeting

An International Varsities Hockey Tournament for men will be held between January 25-31, 2000 at Delhi. This was decided at the annual meeting of the Inter-University Sports Board (IUSB) held recently at Kurukshetra University.

Another major decision taken was to introduce three events in

athletics for women — triple jump, hammer throw and power-lifting. Government will be approached to provide funds and necessary infrastructure to enable the universities to organise these events successfully.

The President of the AIU and Chairman of the Inter University Sports Board, Prof Allauddin Ahmad, Vice Chancellor, Jamia Hamdard gave away trophies to the winners of inter-varsity tournaments for the year 1997-98. Guru Nanak Dev University, Amritsar bagged all the three trophies, i) Dr. B.L. Gupta Trophy for inter-university tournaments (General Championship), ii) Osmania University Platinum Jubilee Trophy for Women Section, and iii) Krida Maharshi Shri Meghnath Nageshkar Trophy for Men's section.

Dr. M.L. Ranga, Vice Chancellor of Kurukshetra University, gave away cash prizes to the following universities :

1. Guru Nanak Dev University, Amritsar — Rs. 2,05,000/-.
2. Mahatma Gandhi University, Kottayam — Rs. 1,60,000/-.
3. Kurukshetra University, Kurukshetra — Rs. 30,000/-.

The prize money is to be utilised for creation and maintenance of sports infrastructure in the universities.

The Prize Money Scheme was launched by the Department of Youth Affairs and Sports, Govt. of India in the year 1992-93 to encourage excellence in sports and games among the students of universities and colleges. The following disciplines of sports are covered under this scheme :

Men's Section : 1. Athletics, 2. Basketball, 3. Boxing, 4. Football, 5. Hockey, 6. Swimming, 7. Volleyball, 8. Wrestling.

Women's Section : 1. Athletics, 2. Basketball, 3. Hockey, 4. Swimming, 5. Volleyball.

The universities winning the I, II, and III position in each of the 13 disciplines are presented cash awards of Rs. 50,000/-, Rs. 30,000/- and Rs. 20,000/- respectively. There is no embargo on winning the same awards year after year.

Taking note of the fact that only about 40 of the 240 Indian universities were doing well on the sports front, AIU President, Prof. Ahmad, called for proactive sport promotion policies by the government agencies and the universities.

The AIU Secretary General, Prof. K.B. Powar, exhorted the corporate sector to promote sports vigorously by helping create necessary infrastructure in the universities and sponsoring university sportspersons for international exposure. This will help colleges & universities contribute in a significant measure to the national sports talent.

News from Abroad

TWAS Associateship Scheme

The Third World Academy of Sciences instituted (TWAS), in 1994, a joint Associateship Scheme in collaboration with several Centres of Excellence in the South to enable active researchers from the South to visit these centres regularly. Currently over sixty Centres are participating in this scheme.

The aim of the scheme is to counteract the brain drain by alleviating the problem of isolation of talented scientists in developing countries, and strengthen the research programmes of Centres of Excellence in the South.

Within this scheme, a number of associates are selected for each of the collaborating Centres from among the most eminent and promising researchers in developing countires, working in the fields of interest of each centre. The selection is highly competitive and the appointment is made on the basis of merit. Special consideration is given to scientists from isolated institutions in developing countries.

The appointment is made for a fixed period of three years, during which the associate is entitled to visit the Centre twice for a period of two to three months each time. Subject to the availability of funds, the appointment may be renewed for a further term of three years. During the visit the associate may purchase his/her own research interests and/or collaborate with the research teams at the Centre in programmes of common interest.

The Third World Academy of Sciences, with a grant provided for this scheme by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Dipartimento per la Cooperazione allo Sviluppo of the Italian Ministry of Foreign Affairs covers the travel expenses involved, while the host centre covers the living expenses of the visitors, and provide all the necessary research facilities.

Last date for receipt of applications for the Associate-

ship Scheme is 1 December 1999.

Further details may be had from Ms. Helen Grant, Associateship Scheme, Third World Academy of Sciences (TWAS), c/o The Abdus Salam International Centre for Theoretical Physics (ICTP), I-34014 Trieste, Italy. Fax: (+39-040)224559, Telex: 460392 ICTPI — E-Mail : twas @ictp.trieste.it

Master's Degree in Public Policy

The Woodrow Wilson School of Public and International Affairs at Princeton University offers a Master's Degree in Public Policy (M.P.P.), providing rising leaders in the international and domestic policy worlds an opportunity to expand their organizational skills and intellectual breadth to compete in an increasingly complex global environment.

The dynamic resources of the Woodrow Wilson School and Princeton University provide the ideal setting for this rigorous one-year residential program for midcareer professionals. .The School's faculty, curriculum, and research facilities are recognized throughout the world for excellence.

The School's generous policy meets the full demonstrated needs of all admitted students. More than three-quarters of graduate students at the School receive financial aid, which for most includes full tuition and a stipend for living expenses.

Applicants must possess a minimum of 7 years of professional experience in domestic or international government agencies, and/or experience in the nonprofit sector. Successful candidates must demonstrate creativity, leadership skills, a commitment to public service, and the intellectual capacity to thrive in a demanding academic setting.

For application form and further information, contact : Woodrow Wilson School of Public and International Affairs, Master's Degree in Public Policy, Princeton University, Princeton, NJ 08544-1013, E-mail:MPP2@wws.princeton.edu, Website : http://www.wws.princeton.edu/degree/grad.html On-line applications now available.

Applications must be received by January 3, 2000.

POSTGRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH CHANDIGARH

ADMISSION NOTICE NO. 52/99 (ACAD)
LAST DATE FOR RECEIPT OF APPLICATION FORMS : 2.8.99 (upto 4.00 p.m.)

Applications on prescribed form are invited for the following para medical courses starting from 1st September, 1999. *Incomplete applications will not be entertained.*

SR. NO.	NAME OF THE COURSE	TOTAL SEATS	GEN	SC	ST	STIPEND ADMISSIBLE
1.	B.Sc. Medical Technology (Laboratory)	15	11	3	1	Rs.150/- p.m. for 1st year and Rs.200/- p.m. for 2nd and 3rd years
2.	B.Sc. Medical Technology(X-Ray)	10	8	1	1	-do-
3.	B.Sc.(Audiology & Speech Therapy)	6	4	1	1	-do-
4.	B.Sc. Medical Technology (Radiotherapy)	5	5	-	-	No stipend admissible
	The course at Sr. No. 4 is restricted to Sponsored/ Deputed candidates					
	Duration of above courses is three academic years					
5.	B.Sc. Physical Therapies (B.Ph.T)	9	8	-	1	Rs.150/- p.m. for 1st year and Rs.200/- p.m. for 2nd,3rd&4th years
	Duration of above courses is four and half academic years					
6.	Operation Theatre Assistant Course	10	8	1	1	Rs.150/- p.m.
	Duration of above courses is one academic year					

1) The number of seats mentioned above is subject to variation without prior notice.
2) **Age limit** : Not more than 25 years and less than 17 years on 1st September, 1999 (i.e. those born after 1st September, 1982 and before 1st September, 1974 are not eligible).
3) Application form and detailed information containing eligibility qualifications, age limit etc. are available from the office of the undersigned either in person on payment of Rs.150/- at the counter from 10.30 A.M. to 11.30 A.M. and 2.30 P.M. to 3.30 P.M. on all working days except Saturdays (on Saturdays forms will be available from 10.30 A.M. to 11.30 A.M.) or by post on written request accompanied with a self addressed envelope of 23 cms x 10 cms. with postage stamps of Rs.12/- affixed thereon and crossed postal order/ bank draft for Rs.150/- drawn in favour of the Director of the Institute.

Note : No application will be entertained through courier.

(J.D.Wig)
Officer Incharge,
(Academic Section)

Examining Our Federal Identity

A.P. Barnabas*

Rasheeduddin Khan, Rethinking Indian Federalism. Shimla, Indian Institute of Advanced Studies, Shimla. 1997. Pp 271, Rs. 350/-.

In the fiftieth year of our sovereign existence as a modern state, it is critically significant for us to rethink our federal polity and plural society in order to design a federal India which can successfully combine "federalism" and "pluralism" in the institutional framework of "self-rule plus shared rule." The rethinking is the theme of the book. Federalism has been generally considered as an area of political scientists rather than other social scientists. The author goes on to say that "pluralism and federalism now appear as the two essential principles for organising the heterogenous societies into viable pattern of political sharing of power...." The book is a result of a "study week" on this theme at the Indian Institute of Advanced Studies. The contributors are from various social science disciplines. The oft statement 'unity in diversity' refers to political and geographical unity and cultural diversities. India is referred to as a pluralistic society. One of the questions raised is whether cultural diversity and cultural pluralism are synonymous. The diversity consists of language and dialectical groups, religious communities, denominational sects, castes, and subcastes, regionalism, ethnic formation and tribal groups. Each of these diversities are discussed in various chapters of the book in relation to federalism.

R. Khan states "In India unity itself is a federal concept". Federalism in India is based on democracy and secularism. Oomen discusses the concept of nation state and ethnie. He feels that all of them have negative connotations when viewed from a humanist perspective. Puri suggests that federalism is an institutional solution to intra-conflicts and tension in plural and diversified societies. On the other hand A. Ahmed states that cultural diversities at different levels of expression have emerged as a threat to the very basis of the state. Dubashi discusses the all India services, and planning including indicative planning as factors of integration. He states that the concept of whole of India as a single geographical unit goes back to the Mahabharata times. Amal Roy's Chapter is on "The federal experience of India. Arshi Khan makes a critical review of article 356 and analyses its implication for the federal system, as it has been used and misused. The ramifications of "Hindutva" in the process of federal nation building is considered by Kumar Suresh. "Hindutva intends to impose upon the larger segments of society a 'self imagined' and 'self invented' homogenous, monolithic and hegemonic Hindu identity which could serve the purpose of establishing a particular kind of social order and political structure corresponding to and rooted in Hindutva and Hindu Rashtra". Such an approach goes against the concept of secular democracy and pluralistic traditions. S.K. Chaube looks at Verna and Jati — the former being pan Indian and the latter localised — in terms of its effect on Indian federation. He suggestes that adult franchise has led to the formation of caste associations and competitive politics. There are many others who have contributed to the volume and have discussed regionalism, secular democracy, Jharkhand movement and Uttar Pradesh and federal balance of India.

The volume brings out the very complex and multi-dimensional aspect of federalism. In the wake of coalition governments at the centre and states, the federal nature of Indian policy needs further analyses. "In its praxis federalism builds and sustains unity of polity and simultaneously preserves and promotes the plurality of society...." It is this premise that has been examined in a highly scholastic and challenging manner by outstanding academics. In the emerging situation of strong regionalism, consolidation of castes, expression of strong religious sentiments, and political realignments, the need is for continuous examination of the federal identity of India. ❑

*Former Professor of Sociology and Social Administration, IIPA, 27 Pocket, A-4, Kalkaji Extn., New Delhi-110 019.

ACHARYA N.G. RANGA AGRICULTURAL UNIVERSITY

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LIMITED RECRUITMENT CONFINED TO SCHEDULED CASTE AND SCHEDULED TRIBE CANDIDATES

I. ASSOCIATE PROFESSORS : (Scale of pay — Rs. 3700-5700-UGC)

A. Faculty of Agriculture : (1) Agril. Economics (1-SC, 1-ST) (2) Agril. Engineering (2-SC, 2-ST) (3) Agril. Extension (2-SC, 1-ST) (4) Agril. Microbiology and Bio-Energy (1-ST) (5) Agronomy (4-SC, 3-ST) (6) Entomology (2-SC, 1-ST) (7) Genetics and Plant Breeding (4-SC, 3-ST) (8) Horticulture (4-SC, 3-ST) (9) Plant Pathology (1-ST-W) (10) Soil Science and Agricultural Chemistry (1-SC, 1-ST) (11) Statistics and Mathematics (1-SC, 1-ST).

B. Faculty of Veterinary Science : (1) Clinical Vety. Medicine (1-SC) (2) Fishery Science-Aquaculture (1-ST) (3) Vety. and Animal Husbandry Extension (1-ST) (4) Vety. Microbiology (1-SC) (5) Vety. Pathology (1-ST).

C. Faculty of Home Science : (1) Human Development and Family Studies (1-SC) (2) Textiles and Clothing (1-ST).

II. ASSISTANT PROFESSORS : (Scale of Pay Rs. 2200-4000-UGC)

A. Faculty of Agriculture : (1) Agril. Engineering (1-SC-W) (4-ST) (2) Agril. Extension (4-ST) (3) Agril. Microbiology and Bio-Energy (1-SC, 1-ST) (4) Agronomy (6-ST) (5) Entomology (4-ST) (6) Genetics and Plant Breeding (4-SC-1W, 11-ST-2W) (7) Horticulture (2-SC-1W, 5-ST-1W) (8) Plant Physiology (2-SC-1W, 1-ST) (9) Soil Science and Agril. Chemistry (1-SC, 2-STW).

B. Faculty of Veterinary Science : (1) Animal Genetics and Breeding (1-ST) (2) Animal Nutrition (1-ST) (3) Animal Reproduction, Gynaecology and Obstetrics (1-SC, 1-ST) (4) Livestock Production and Management (1-SC, 4-ST) (5) Livestock Production and Management (Avian) (1-SC) (6) Veterinary Anatomy and Histology (1-SC-W, 1-ST) (7) Veterinary and Animal Husbandry Extension (1-SC) (8) Veterinary Parasitology (1-SC) (9) Vety. Pathology (1-SC W) (10) Vety. Pharmacology and Toxocology (1-SC) (11) Vety. Physiology (1-ST).

LIMITED RECRUITMENT IN RESPECT OF OTHER CATEGORIES

ASSOCIATE PROFESSORS :

A. Faculty of Agriculture : (1) Agril. Extension (BC-D-W-1) (2) Entomology (1-BC-A).

B. Faculty of Vety. Science : (1) Animal Nutrition (1-BC-A), (1-OC-W) (2) Fishery Science (Aquaculture) (1-BC-B) (3) Fishery Science (Fish Processing Technology) (1-OC-W) (4) Vety. Bio-Chemistry (1-BC-D) (5) Vety. Epidomology and Preventive Medicine (1-BC-A-W) (6) Vety. Public Health (1 BC-B-W, and 1-OC-W).

C. Faculty of Home Science : (1) Human Development Family Studies (1-BC-B).

ASSISTANT PROFESSORS :

A. Faculty of Agriculture : (1) Agricultural Engineering (1-BC-B-W) (2) Agricultural Extension (1-BC-B-W) (1-BC-C) (1-BC-D) (3) Agricultural Microbiology and Bio-Energy (1-BC-A) (4) Bio-Chemistry (1-BC-A-W) (5) Entomology (1-OC-W) (6) Plant Physiology (1-BC-D-W).

B. Faculty of Veterinary Science : (1) Dairy Extension (1-OC-W) (2) Dairy Science (1-BC-A-W) (3) Fishery Science (1-BC-B-W) (4) Fishery Science (Limmonology and Oceanography) (1-OC-W) (5) Livestock Production and Management (1-BC-A) (2-OC-W) (1 BC-B) (6) Veterinary Animal Husbandry (1-BC-D-W) (7) Veterinary Bio-Chemistry (1-BC-B) (8) Veterinary Pathology (1-BC-D-W) (9) Vety. Surgery and Radiology (1-BC-A-W) (1-OC-W).

The Scales of all posts are likely to be revised. The "W" in each category indicates the reservation for Women. In the Faculty of Home Science only Women candidates are eligible. The University reserves the right not to fill all or any of the vacancies notified. Prescribed application forms together with full details of qualifications prescribed for the posts and other particulars can be had from the University on payment of Rs. 10/- in person or through a crossed demand draft in favour of Comptroller, Acharya N.G. Ranga Agricultural University, Hyderabad. NO MONEY ORDER/POSTAL ORDER will be entertained. For obtaining it by post, a self addressed and stamped envelope of Rs. 12/- of the size of 35 x 15 cm shall be enclosed to the requisition letter. The cover containing the requisition for application form shall be superscribed, "Requisition for application" and sent to the Registrar, at the above address.

Sale of applications from 5.7.1999 and filled in applications shall reach the undersigned on or before 3.00 PM on **24.7.1999.**

V. Prabhakar Rao
REGISTRAR

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities (May-June 1999)

SOCIAL SCIENCES

Anthropology

1. Anant, Indu. **Chhattisgarh mein anusoochit jati, janjati chhatra-chhatrayon ke vikas mein vishwavidyalayeen shiksha kee bhumika : Bilaspur jile ke vishesh sandarbh mein.** (Dr Anil Kishore Sinha), Department of Anthropology, Guru Ghasidas University, Bilaspur.

Commerce

1. Buttan, Chanchal Kumar. **Madhya Pradesh Narmada Basin mein samajik vaniki ka adhyayan.** (Prof V P Singh), Department of Commerce, Barkatullah University, Bhopal.

2. Dewan, S M. **A comparative study of trade flows under SAPTA and its potential to become SAFTA with special reference to India.** (Prof K M Upadhyay), Department of Commerce, Jamia Millia Islamia, New Delhi.

3. Kalbhore, Kulendra Kumar. **Madhya Pradesh mein IFFCO dwara rasayanik urvarkon ka vipanan : Ek vishleshanatmak adhyayan.** (Dr B M S Bhadoria), Department of Commerce, Barkatullah University, Bhopal.

4. Prasada Rao, B Vara. **State and status of the handloom industry in Andhra Pradesh.** (Prof B Ramakrishna Rao), Department of Commerce, Andhra University, Waltair.

5. Wadodkar, Ganeshkumar Keshavrao. **Nagpurateel audyogik kshetrat karyarat aslelaya Karamchari Rajya Beema Nigamchya uddishtapoorticha vishleshanatmak abhyas ani mulyankan, 1985-86 te 1995-96.** (Dr N B Vaidya), Department of Commerce, Nagpur University, Nagpur.

Economics

1. Banoth, Sureshlal. **Environmental and economic implications of industrialization in tribal areas : A study in Andhra Pradesh.** (Dr A Sadanandam), Department of Economics, Kakatiya University, Warangal.

2. Dhane, Rajendra M. **A study of purchase tax in India.** (Dr B N Nimbur), Department of Economics, Gulbarga University, Gulbarga.

3. Kumar, Ambili. **A study on community participation in disease control programmes with reference to control of filariasis in Alappuzha District.** (Dr P Sudarsanan Pillai), Department of Economics, Cochin University of Science and Technology, Kochi.

4. Muraleedharan, K. **Economics of road transport in Kerala: A comparative study of public and private sectors.** (Dr Lakshmy Devi K R), Department of Economics, University of Calicut, Calicut.

5. Sadanandam, P. **A study of socio economic conditions of handicrafts artisans in Warangal and Karimnagar districts of Andhra Pradesh during 1980-90 decade.** (Dr K B Kolte), Department of Economics, Nagpur University, Nagpur.

Education

1. Ali, Shah Bano. **An analytical study of pre B Ed test results in relation to interest, intelligence, creativity and achievement of B Ed pupil teachers of Barkatullah University, Bhopal.** (Dr Didar Singh), Department of Education, Barkatullah University, Bhopal.

2. Bajpai, Sunil. **Adivasi evam samanya chhatron ke vyaktitva pratimanon ka tulanatmak adhyayan.** (Dr S K Gupta), Department of Education, Barkatullah University, Bhopal.

3. Khan, Mohsin Ali. **Assessment of the societal readiness to accept the introduction of adolescence education in the school curriculum.** (Dr Shaheen Usmani and Dr Saroj Yadav), Department of Education, Jamia Millia Islamia, New Delhi.

4. Manjusha, M. **A study into the effectiveness of the ETV lessons conducted by the UGC.** (Prof M Malla Reddy), Department of Education, Osmania University, Hyderabad.

5. Manorama Wati. **Anivarya shiksha star ke vidyardhiyon mein vyakhyatmak lekhan ka vikasatmak adhyayan.** (Dr I D Gupta), Department of Education, Barkatullah University, Bhopal.

6. Nuzhat Parveen. **A study of the relationship of mother's aspiration, involvement level with the scholastic achievement of their children with special reference to the educational status of the mothers.** (Prof Talat Aziz and Prof N K Ambasht), Department of Education, Jamia Millia Islamia, New Delhi.

7. Sehgal, Gur Charan Singh. **A critical study of work experience programme at secondary stage in Government and Government aided schools of Delhi.** (Prof Mohd Akhtar Siddiqui and Prof Manjit Sen Gupta), Department of Education, Jamia Millia Islamia, New Delhi.

Home Science

1. Saxena, Mukta. **Lipid profile with special reference to hyper lipidemia and myocardial infarction: A dietary study.** (Dr Madhu Mishra), Department of Food and Nutrition, Barkatullah University, Bhopal.

Law

1. Bikshapathi Reddy, G. **Supreme Court and judicial activism: A study of its contribution in specific areas of Constitutional Law after 1980.** (Prof K Shrinivas Rao), Department of Law, Osmania University, Hyderabad.

2. Krishna Pillai, P S. Legal control of fishing industry in Kerala. (Dr V D Sebastian), Department of Law, Cochin University of Science and Technology, Kochi.

3. Mohammed Zaheeruddin. The law relating to working conditions of labour with special reference to cement industries in Nalgonda District, Andhra Pradesh : A case study. (Prof Ahmedullah Khan), Department of Law, Osmania University, Hyderabad.

4. Sammaiah, M. Compensation to victims of crime and abuse of power : A study of recent development in Indian Law. (Dr T Vidya Kumari), Department of Law, Osmania University, Hyderabad.

5. Sharma, Archana. Paryavaran pradhushan, samasya evam vidhik pratikriya : Jal pradushan ke vishesh sandarbh mein. (Dr M K Shrivastava), Department of Law, Barkatullah University, Bhopal.

6. Syed Maswood. A study of the law relating to admiralty jurisdiction of the courts in India. (Dr Abdul Rayees Khan), Department of Law, Osmania University, Hyderabad.

Library & Information Science

1. Ramanaiah, K. Job satisfaction among library professionals: A study of public, academic and special libraries in Andhra Pradesh. (Dr S L Sangam), Department of Library and Information Science, Karnatak University, Dharwad.

Management

1. Badari Narayana, D. Performance appraisal effectiveness and appraiser's perceptions in Visakhapatnam Steel Plant. (Dr G M Darshan), Department of Industrial Relations and Personnel Management, Andhra University, Waltair.

2. Dharam Pal. Relationship of operating and financial variables with profit performance in selected industries. Department of Business Administration, Punjab Agricultural University, Ludhiana.

3. Salim, M H. Marketing orientation of small firms : A study with reference to Trivandrum District. (Dr N Chandrasekhara Pillai), School of Management Studies, Cochin University of Science and Technology, Kochi.

4. Vijaya Prakash, D. Export marketing of fish and fish products : A study of marketing operations of the Marine Products Export Development Authority. (Dr K Ram Mohan Rao), Department of Commerce and Management Studies, Andhra University, Waltair.

Military Studies

1. Sharma, Manoj. Antakvad evam Bharat Pak sambandh. (Dr Kailash Tyagi), Department of Military Science, Barkatullah University, Bhopal.

Political Science

1. Jain, Sanyogita. Indias foreign policy : A study of Indo-Nepal relation after independence. (Dr Nisarul Haque), Department of Political Science, Jamia Millia Islamia, New Delhi.

2. Joshi, Amita. Kautilya ke Arthashastra main rajya darshan : Machiavelley ke vicharon ke sandarbh mein ek tulanatmak ankalan. (Dr H C Parashar), Department of Political Science, Barkatullah University, Bhopal.

3. Mahatha, Guna Ram. Rahul Sankrityayan ka samajik rajnitik darshan : Ek alochnatmak adhyayan. (Dr C P Sharma), Department of Political Science, Vinoba Bhave University, Hazaribag.

4. Pradhan, Neelam. UN peace-keeping operations in Bosnia. (Prof S J R Bilgrami), Department of Political Science, Jamia Millia Islamia, New Delhi.

5. Sawshilya, Archana. The emerging relationship between permanent executive and political executive : A case study of Bihar since 1967. (Prof Z A Nizami), Department of Political Science, Jamia Millia Islamia, New Delhi.

6. Sharma, Madhu. Bharatiya rajniti ko Shrimati Indira Gandhi ke yogdan ka alochnatmak adhyayan. (Dr R K Jain), Department of Political Science, Barkatullah University, Bhopal.

Social Work

1. Indira Rani, N. Female headed households of Visakhapatnam : A study of their socio-demographic profile. (Prof B Vijayalakshmi), Department of Social Work, Andhra University, Waltair.

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National Dairy Research Institute, Karnal

91. Director (One Post)

Qualifications Essential : i) Doctoral degree in any branch of Dairy Science/Veterinary Science/Animal Science or related subject. ii) An eminent scientist/teacher having atleast 8 years experience in the grade of Principal Scientist (Rs. 16400-22400) or in an equivalent position out of which 3 years experience should be in a Research Management Position or in an equivalent position. OR An eminent Scientist having proven record of scientific contribution working in a reputed organisation/institute having 21 years experience in the relevant subject out of which 3 years experience should be in a Research Management Position or in an equivalent position. iii) Evidence of contribution to Research/Teaching/Extension Education/Management as supported by published work/ innovations. iv) Specialisation in Dairy Production, processing and management and experience for conducting research in Indian Dairy Cattle Production and Dairy Processing Technologies.

Indian Veterinary Research Institute, Izatnagar

92. Director (One Post)

Qualifications Essential : i) Doctoral degree in any branch/ discipline of Veterinary Science/Animal Science. ii) & iii) As in Item No. 91 (ii) & 91 (iii) above. iv) Specialisation in the field of Livestock Health/Livestock Production.

Assistant Director General, Director of Institutes, Project Director & Joint Director of National Institute

Pay Scale : Rs. 16400-450-20900-500-22400 (Minimum pay to be fixed at 17300 on initial appointment).

Indian Council of Agricultural Research Headquarters, New Delhi.

93. Assistant Director General (Horticulture) (One Post)

Qualifications Essential : i) Doctorate degree in Horticulture. ii) At least 5 years experience as a Principal Scientist (Rs. 16400-22400) or in an equivalent position. OR An eminent Scientist having proven record to scientific contribution working in a reputed organisation/institute having atleast 18 years experience in the relevant subject. iii) Evidence of contribution to Research/Teaching/Extension Education as supported by published work/innovations. iv) Specialisation in coordinating of research programmes in the field of Horticulture, fruit crops and post harvest technology in particular. *Desirable :* Experience in a Research Management Position.

94. Assistant Director General (Policy & Perspective Planning) (One Post)

Qualifications Essential : i) Doctorate degree in any branch of Agricultural Sciences. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation and experience in Planning and analysis of agricultural research policy and institutional development in Indian NARS. *Desirable :* Experience in a Research Management Position.

95. Assistant Director General (HRD II) (One Post)

Qualifications Essential : i) Doctorate degree in any branch of Agricultural Sciences and allied subject. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation in coordination of educational programmes/institutions in the field of Agricultural Sciences. *Desirable :* Experience in a Research Management Position.

Central Rice Research Institute, Cuttack

96. Director (One Post)

Qualifications Essential : i) Doctorate degree in any branch of Agricultural Sciences. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation in Crop Research, specially on Rice. *Desirable :* Experience in a Research Management Position.

Indian Institute of Horticultural Research, Bangalore

97. Director (One Post)

Qualifications Essential : i) Doctorate degree in Horticulture or related discipline. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation and experience in the field of Horticultural Research/Education. *Desirable :* Experience in a Research Management Position.

National Research Centre on Arid Horticulture, Bikaner

98. Director (One Post)

Qualifications Essential : i) Doctorate degree in Horticulture and related disciplines. ii) & iii) As in Item No. 93(ii) & (93(iii) above. iv) Specialisation in the field of Horticultural Research. *Desirable :* Experience in a Research Management Position.

Vivekananda Parvatiya Krishi Anusandhan Shala, Almora (U.P.)

99. Director (One Post)

Qualifications Essential : i) Doctorate degree in any branch of Agricultural Sciences. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation in any field of Agricultural Research relevant to hill agriculture. *Desirable :* Experience in a Research Management Position.

Central Arid Zone Research Institute, Jodhpur

100. Director (One Post)

Qualifications Essential : i) Doctorate degree in Agricultural related sciences. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation and experience in the field of Arid Zone Research with special reference to Natural Resource Management. *Desirable :* Experience in a Research Management Position.

Indian Institute of Pulses Research, Kanpur

101. Director (One Post)

Qualifications Essential : i) Doctorate degree in any discipline of crop sciences. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation and experience of research and established leadership in the area of crop science specially in Pulses research. *Desirable :* Experience in a Research Management Position.

National Centre for Integrated Pest Management, New Delhi

102. Director (*One Post*)

Qualifications Essential : i) Doctorate degree in any area of plant protection. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation in integrated pest management. *Desirable :* Experience in a Research Management Position.

Project Directorate on Poultry, Hyderabad

103. Project Director (One Post)

Qualifications Essential : i) Doctorate degree in Animal Breeding. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation in Poultry Breeding. *Desirable :* Experience in a Research Management Position.

Central Institute of Fisheries Education, Mumbai

104. Joint Director (One Post)

Qualifications Essential : i) Doctorate degree in fish and fishery science/Zoology/Fisheries Technology or relevant discipline. ii) & iii) As in Item No. 93(ii) & 93(iii) above. iv) Specialisation in fisheries research/education. *Desirable :* Experience in a Research Management Position.

HEAD OF DIVISIONS

Pay Scale : Rs. 16400-22400

Central Institute for Cotton Research, Nagpur

105. Head, Division of Crop Improvement (One Post)

Qualifications Essential : i) Doctorate degree in Plant Breeding/ Genetics/Cytogenetics/Biotechnology/Economic Botany/ Statistics. ii) Principal Scientist in the scale of Rs. 16400-22400 or in an equivalent position. OR 8 years experience as a Senior Scientist (Rs. 12000-18300) or in an equivalent position. OR An eminent Scientist having proven record of scientific contribution working in a reputed organisation/institute having at least 13 years experience in the relevant subject. iii) As in Item No. 93(iii) above. iv) Specialisation and experience in the field of Crop Improvement.

106. Head, Division of Crop Protection (One Post)

Qualifications Essential : i) Doctoral degree in Plant Pathology/ Entomology/Nematology. ii) & iii) As in Item No. 105 (ii) & 93(iii) above. iv) Specialisation and experience in resistance management against insect pests and diseases/biological control.

107. Head, Division of Crop Production (One Post)

Qualifications Essential : i) Doctorate degree in Plant Physiology/Agronomy/Agriculture Chemistry/Biochemistry/Soil Science. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in the field of modern research methodologies of crop production.

Indian Grassland and Fodder Research Institute, Jhansi

108. Head, Division of Crop Improvement (One Post)

Qualifications Essential : i) Doctoral degree in Plant Breeding/ Genetics/Cytogenetics/Botany/Agril. Botany. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in the field of Forage/Crop improvement.

109. Head, Division of Crop Production (One Post)

Qualifications Essential : i) Doctoral degree in Agronomy/Soil Science/Microbiology. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in the field of Forage/ Crop production and management.

110. Head, Division of Plant-Animal Relationship (One Post)

Qualifications Essential : i) Doctoral degree in Animal Nutrition/ Animal Husbandry & Dairying/Livestock Production Management. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in the field of Forage Quality Evaluation/Livestock Production and Management.

111. Head, Division of Farm Machinery & Post Harvest Technology (One Post)

Qualifications Essential : i) Doctoral degree in Agricultural Engineering/Farm Machinery and Power. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in the field of Design and Development of Farm Machinery and Post-Harvest Processing.

Central Institute for Research on Cotton Technology, Mumbai

112. Head, Divison of Technology Transfer (One Post)

Qualifications Essential : i) Doctoral degree in Agricultural Engineering, Textile Technology, Textile Physics, Industrial Engineering, Mechanical Engineering or Agricultural Extension. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Experience in transfer of Technology on Cotton Processing particularly ginning and entrepreneurial development.

Indian Agricultural Statistics Research Institute, New Delhi

113. Head, Division of Design of Experiments (One Post)

Qualifications Essential : i) Doctoral degree in Agricultural Statistics/Statistics. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in application of Design of Experiments and analysis of Experimental Data to biological and Agricultural Research.

114. Head, Division of Computer Applications (One Post)

Qualifications Essential : i) Doctoral degree in Agricultural Statistics/Statistics/Computer Science with specialisation in Computer Applications. ii) & iii) As in Item No. 105(ii) & 93(iii) above. iv) Specialisation and experience in Software Applications in Statistical Methods/Biological and Agricultural Sciences Research.

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Pay Scale : Rs. 16400-22400. *Age :* Below 50 years (There will be no maximum age limit for the ICAR employees. Relaxation to SC/ST candidates may be given in accordance with the orders issued by Govt. of India from time to time).

National Bureau of Animal Genetic Resources, Karnal

115. Principal Scientist (Animal Genetics & Breeding) (One Post)

Qualifications Essential : i) Doctoral degree in Animal Genetics/ Animal Genetics and Breeding. ii) 10 (Ten) years experience excluding the period spent in obtaining the Ph.D. degree (subject to maximum of 3 years) in research/teaching/ extension education provided 3 years experience is as a Senior Scientist (Rs. 12000-18300) or in an equivalent position. ii) As in Item No. 93(iii) above. iv) Specialisation and experience of research in Molecular Genetics.

116. Principal Scientist (Animal Genetics & Breeding) (One Post)

Qualifications Essential : i) Doctoral degree in Animal Breeding. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation and experience in the field of Animal Breeding/Population Genetics.

Indian Institute of Vegetable Research, Varanasi

117. Principal Scientist (Agril. Entomology) (One Post)

Qualifications Essential : i) Doctoral degree in Agricultural

Entomology. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation in teaching/research experience on Insect Pest Management of Vegetable crops.

National Research Centre for Sorghum, Hyderabad

118. Principal Scientist (Plant Breeding) (One Post)

Qualifications Essential : i) Doctoral degree in the relevant subject. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation : Sorghum Hybrid breeding and coordination of multilocation research and testing.

119. Principal Scientist (Plant Breeding) at C.R.S., Solapur (One Post)

Qualifications Essential : i) Doctoral degree in Plant Breeding/ Genetics. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation : Plant breeding and research on genetic enhancement with emphasis on drought resistance.

120. Principal Scientist (Agronomy) (One Post)

Qualifications Essential : i) Doctoral degree in the relevant subject. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation : Sorghum Agronomic Management, Crop Modelling, Sorghum based cropping systems and coordination of multilocation research and testing.

121. Principal Scientist (Pathology) (One Post)

Qualifications Essential : i) Doctoral degree in the relevant subject. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation : Sorghum host plant resistance, integrated disease management and coordination of multilocation research and testing.

Directorate of Oilseeds Research, Hyderabad

122. Principal Scientist (Plant Breeding) (One Post)

Qualifications Essential : i) Doctoral degree in Genetics/Plant Breeding/Genetics and Plant Breeding. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation in Improvement of oilseed Crops.

National Research Centre on Rapeseed Mustard, Bharatpur

123. Principal Scientist (Plant Breeding) (One Post)

Qualifications Essential : i) Doctoral degree in Plant Breeding/ Genetics and Plant Breeding. ii) & iii) As in Item No. 115(ii) & 93(iii) above. iv) Specialisation in Brassica Breeding.

SENIOR SCIENTIST

Pay Scale : Rs. 12000-18300. *Age :* Below 45 years (There will be no maximum age limit for the ICAR employees. Relaxation to SC/ST candidates may be given in accordance with the orders issued by Govt. of India from time to time).

Indian Institute of Vegetable Research,Varanasi

124. Senior Scientist (Horticulture) (One Post)

Qualifications Essential : i) Doctoral degree in Horticulture/ Vegetable Crops. ii) 5 (Five) years experience excluding the period spent in obtaining the Ph.D. degree, during service (subject to maximum of 3 years) in research/teaching/ extension education as a Scientist (Rs. 2200-4000) (Pre-revised) or in an equivalent position in the relevant subject. iii) As in Item No. 93(iii) above. iv) Specialisation in the field of Horticulture preferably in the field of Vegetable Production.

Central Institute of Agricultural Engineering, Bhopal

125. Senior Scientist (Home Science Extension) (One Post)

Qualifications Essential : i) Doctoral degree in Home Science with specialisation in Extension or Food and Nutrition. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Specialisation in Food and Nutrition.

National Research Centre on Arid Horticulture, Bikaner

126. Senior Scientist (Biotechnology) (One Post)

Qualifications Essential : i) Doctoral degree in Plant Biotechnology. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Working experience in Plant Tissue Culture.

Central Soil Salinity Research Institute, Karnal

127. Senior Scientist (Soil & Water Conservation Engineering) (One Post)

Qualifications Essential : i) Doctoral degree in Agricultural Engineering (Soil Water Conservation/Irrigation Engg.)/Civil Engg. (Water Resource Management) with 5 years experience (excluding the period spent in obtaining the Ph.D. degree during service subject to a maximum of 3 years) in research teaching/extension education as Scientist (Rs. 2200-4000) (Pre-revised) or in an equivalent position in the relevant subject. OR Master's degree in the case of Engineering discipline with 8 years experience in research/teaching/ extension education as a Scientist (Rs. 2200-4000) (Pre-revised) or in an equivalent position in the relevant Engineering subject. ii) As in Item No. 93(iii) above. iv) Specialisation : Irrigation and Drainage Management for Salinity Control.

Central Institute of Fisheries Education, Mumbai

128. Senior Scientist (Biotechnology) (One Post)

Qualifications Essential : i) Doctoral degree in Animal/Fish Biotechnology/Genetics Engineering/Molecular Biology/ Biochemical Engineering/Microbiology/Biochemistry with specialisation in Biotechnology. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Relative specialisation and relevant experience in teaching/research in Biotechnology or related subject.

National Research Centre for Cashew, Puttur

129. Senior Scientist (Horticulture) (One Post)

Qualifications Essential : i) Doctoral degree in Horticulture. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Experience in Horticulture Crops preferably Cashew.

Central Inland Capture Fisheries Research Institute, Barrackpore

130. Senior Scientist (Microbiology) (One Post)

Qualificatins Essential : i) Doctoral degree in Microbiology/ Fish Microbiology. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Specialisation and relevant experience in teaching/research in Microbiology related to fisheries.

131. Senior Scientist (Agricultural Statistics) (One Post)

Qualifications Essential : i)Doctoral degree in Agricultural Statistics/Fisheries Statistics. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Specialisation and experience in the field of Agricultural Statistics/Fisheries Statistics.

132. Senior Scientist (Biochemistry) (One Post)

Qualifications Essential : i) Doctoral degree in Biochemistry. ii) & iii) As in Item No. 124(ii) & 93(iii) above. iv) Specialisation and experience in teaching/research related to animal/fish biochemistry.

133. Senior Scientist (Biotechnology) (One Post)

Qualifications Essential : i) Doctoral degree in Animal/Fish Biotechnology. ii) & iii) As in Item No. 124(ii) & 93(iii) above.

iv) Related specialisation and relevant experience in teaching/ research in biotechnology.

TECHNICAL

Central Institute of Fisheries Education, Mumbai

134. T-7 (Skipper) (One Post)

Pay Scale : Rs. 10000-325-15200. *Age :* Below 45 years (There will be no maximum age limit for the ICAR employees. Relaxation to SC/ST candidates may be given in accordance with the orders issued by Govt. of India from timl to time.

Qualifications Essential : I) S.S.L.C. or equivalent. II) CIFNET Training Course in Mate Fishing Vessel. III) Competency Certificate as Skipper Grade-I from M.M.D. or equivalent. iv) Five years experience as Skipper in charge in stern fishing trawler having length not less than 30 m. *Desirable :* Experience in long lining, pelagic trawling : operation/ demonstration of modern acoustic equipments.

Indian Council of Agricultural Research Headquarters, New Delhi

135. T-6, Public Relation Officer (One Post) (Reserved for OBC)

Pay Scale : 8000-275-13500. *Age :* Below 35 years (There will be no maximum age limit for the ICAR employees. Relaxation to SC/ST candidates may be given in accordance with the orders issued by Govt. of India from time to time).

Qualifications Essential : I) Bachelor's degree in Biological Sciences. II) Five years experience of working in public or private sector or in some Govt. organisation at National level. The experience should include preparing publicity material preferably of Scientific nature, putting up exhibitions, production of Video Programmes and liaison with Press (Media). *Desirable :* I) Master's degree in biological sciences. II) Bachelor's degree or Diploma in Journalism.

136. T-6, Curator (One Post)

Pay Scale : 8000-275-13500. *Age :* Below 35 years (There will be no maximum age limit for the ICAR employees. Relaxation to SC/ST candidates may be given in accordance with the orders issued by Govt. of India from time to time).

Qualifications Essential : I) Bachelor's degree in Biosciences/ Museology. II) Five years' experience in Museum/exhibition work. *Desirable :* I) Post Graduate Diploma/Degree in Museology. II) Working experience in National/State level Museum.

IMPORTANT NOTE : 1) The candidates selected for appointment to the posts in Animal Science disciplines and possessing degree in Veterinary Science/Veterinary Science and Animal Husbandry followed by Masters and Doctoral degree in the relevant discipline will also be entitled to non-practicing allowance as admissible under the rules from time to time subject to fulfilment of conditions of entitlement for the same as prescribed by the Council. 2) The posts appearing at Sl. No. 91 to 114 will be filled up on tenurial basis for a period of five years. However, retirement age for all scientific posts is 60 years.

CLOSING DATE FOR RECEIPT OF APPLICATIONS IN AGRICULTURAL SCIENTISTS RECRUITMENT BOARD IS 17.8.1999.

(For candidates from abroad and in the Andaman and Nicobar Islands, Lakshadweep, Minicoy and Amindivi Islands, States/ Union Territories in the North-Eastern Region, Ladakh division of J&K State, Sikkim, Pangi, Sub-division of Chamba, Lahul and Spiti, districts of Himachal Pradesh, last date will be 1.9.1999).

GENERAL INSTRUCTIONS : 1. For application form, please write to the Secretary, Agricultural Scientists Recruitment Board, Krishi Anusandhan Bhawan, Pusa, New Delhi-110 012. Request for form must specify Advertisement No. and name of the post and Item No. and should be accompanied by self addressed unstamped envelope (23x10 cms size). 2. Separate application with separate fee, separate No Objection Certificate, separate Vigilance Clearance Certificate is required for each post. 3. Application form complete in all respects, should reach the Office of the ASRB together with the application fee of Rs. 8/- (No fee for SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Secretary, Agricultural Scientists Recruitment Board by the closing date. Applications received after the closing date will not be entertained. In case a candidate anticipates delay in forwarding of his application through proper channel, he must send an advance copy of the application alongwith the fee which must reach this office on or before the closing date. Postal Order(s) obtained before the date of publication of advertisement and after the closing date of the applications will not be accepted. 4. The candidates should fill each and every column of Application Form at the appropriate place. Wherever the space is not sufficient they could add extra sheet but it should be strictly in the prescribed format. 5. Candidates abroad may apply on plain paper and send their applications together with an International Postal Order/Bank draft covering the application fee drawn in favour of the Secretary, Agricultural Scientists Recruitment Board so as to reach this office of ASRB by the closing date. In countries where regular commercial channels are not available, the candidates can deposit the application fee in local currency with the Indian Mission/Posts abroad, who in turn will issue an R.B.I. draft in favour of the Secretary, Agricultural Scientists Recruitment Board, New Delhi. 6. The prescribed Essential Qualifications are minimum and possessing of same does not entitle candidates to be called for interview. Where the number of applicants is large, the Board may restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement. 7. If required, candidates must appear for personal interview. 8. Higher initial pay may be recommended by the ASRB for specially qualified and experienced candidates for all the posts. 9. For all technical posts and other non-scientific positions a screening test may be conducted by the Board to be followed by an interview. 10. T.A. contribution will be admissible to those called for interview as per ICAR Rules. 11. Crucial date for determining the age limit for candidates will be the closing date for receipt of applications from candidates in India. 12. The option of use of Hindi in interviews exists in the Board. 13. Canvassing in any form will disqualify a candidate.

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davp 1020(9)99

CLASSIFIED ADVERTISEMENTS

SHAHEED BHAGAT SINGH
COLLEGE OF ENGINEERING & TECHNOLOGY
MOGA ROAD, FEROZEPUR-152 001
(Established by the Punjab Government)

Advertisement No. 1/Jt. Instt. (1999) **http://dispunjab.com/e3.htm**

Applications are invited for following faculty positions in the four autonomous Engineering Colleges in the State of Punjab established by the Punjab Govt./jointly by Pb. Govt. and Govt. of India namely Shaheed Bhagat Singh College of Engg. & Tech., Ferozepur, Giani Zail Singh College of Engg. & Tech., Bathinda, Beant College of Engg. & Tech., Gurdaspur & Dr. B.R. Ambedkar Regional Engg. College, Jalandhar.

Applications should be submitted on the prescribed application form obtainable from the office of the respective Principal/Registrar on cash payment of Rs. 75/- (counter) and for Rs. 100/- (by post) by sending a demand draft favouring Principal/Registrar of respective college and payable at the city of location of the college. For SC/ST candidates (only from Punjab state) the application form charges are Rs. 40/- (counter) and Rs. 65/- (by post). No other fee is chargeable. Write clearly the name of the post for which you are an applicant on the top of the envelope. Separate application should be submitted while applying for a post in more than one college. The application form complete in all respects and accompanied by attested testimonials in support of qualifications, experience etc should reach the office of the concerned Principal/Registrar latest by **10.08.1999.**

S. No.	Name of Department	SBSCET FEROZEPUR			GZSCET BATHINDA			BCET GURDASPUR			REC JALANDHAR		
		Prof.	A.P.	Lect.	Prof.	A.P.	Lect.	Prof.	A.P.	Lect.	Prof.	A.P.	Lect.
1.	Mech. Engg.	02(G)	03(G) 01(SC)	—	02(G) 01(SC)	02(SC)	02(G) 01(SC)	01(G)	01(G) 02(SC)	01(SC) 01(ESM) 01(PH)	—	02	01(T)(G)
2.	Prod. Engg.	02(G)	01(G) 01(SC)	—	—	—	—	01(G)	01(G)	02(SC) 01(BC)	—	—	—
3.	Applied Mathematics	01(G)	01(G)	—	01(G)	—	01(G) 01(SC)	01(G)	02(G)	—	—	01	01(T)(G)
4.	Applied Physics	01(G)	—	—	—	—	01(SC)	01(G)	01(G)	—	—	01	—
5.	Applied Chemistry	01(G)	—	—	—	—	01(SC)	01(G)	01(G)	—	—	—	—
6.	Computer Science & Engg.	02(G)	02(G) 01(SC)	01(G) 01(SC)	01(G)	02(G) 01(SC)	02(G) 01(SC)	01(G)	01(G) 01(SC)	01(SC) 01(ESM)	01	01 01(T)	01(SC) 02(T)(G)
7.	Chemical Engg.	02(G)	03(G) 01(SC)	02(G) 03(SC) 01(ESM)	—	—	—	01(G)	03(G) 01(SC)	02(G) 02(SC) 01(BC) 01(ESM) 01(PH)	01	02 (& Bio Engg.)	01(G)
8.	Materials Sci. & Engg.	02(G)	03(G) 01(SC)	02(G) 03(SC) 01(BSM)	—	—	—	—	—	—	—	—	—
9.	Industrial Engg.	02(G)	03(G) 01(SC)	—	—	—	—	—	—	—	01	01	01(T)(SC) 01(T)(G)
10.	Civil Engg.	—	—	—	01(G) 01(SC)	02(G) 02(SC)	—	—	—	—	01	02	—
11.	Electrical Engg.	—	—	—	01(SC)	01(SC)	—	—	—	—	—	—	—
12.	Electronics & Communication Engg.	—	—	—	01(G)	01(SC)	01(G)	01(G)	02(G)	01(G) 01(SC) 01(BSM)	01	—	01(SC) 01(T)(G)
13.	Architecture	—	—	—	01(G) 01(SC)	01(SC)	01(SC)	—	—	—	—	—	—
14.	Textile Engg.	—	—	—	01(G) 01(SC)	02(G) 01(SC)	02(G) 01(SC)	—	—	—	—	02	01(G)
15.	Instrumentation & Control Engg.	—	—	—	—	—	—	—	—	—	—	01	01(T)(G)
16.	Leather Technology	—	—	—	—	—	—	—	—	—	—	01	—
17.	Humanities and Management	01(G)	01(G)	—	—	—	01(SC) 01(G)	01(G)	01(G)	—	—	—	01(T)(G)

Note : The full form of abbreviations used in above table are as follows :
T-Temporary, G-General, SC-Schedule Caste and Tribe of Punjab, ESM-Ex-Servicemen, PH-Physically Handicapped, BC-Backward Classes of Punjab.

1. **Professor : Pay Scale Rs. 4500-7300 (unrevised).**
Essential Qualifications : Ph.D. with first class Bachelor's or Master's degree in Engg./ Technology or Ph.D. degree with first class Bachelor's or Master's degree in appropriate branch for teaching posts in Humanities and Science.
Experience : Ten years distinguished experience in Teaching/Industry/Research, out of which five years must be at the level of Assistant Professor or equivalent. Candidates from industry/profession with professional work of high standard, recognised at National/International level, equivalent to Doc-

torate would also be eligible.

2. **Assistant Professor : Pay Scale Rs. 3700-5700 (unrevised).**
   Essential Qualifications : Ph.D. in appropriate branch with first class Master's degree in case of teaching post in Science and Humanities OR Ph.D. Degree with First Class Degree at Bachelor's and/or Master's level in an appropriate branch of Engineering/ Technology..
   Experience : 3 years experience in Teaching/Industry/Research at the level of Lecturer or equivalent.
   Candidates from Industry/Profession with the qualifications as prescribed for Lecturer and the professional work which is significant and can be recognised as equivalent to Ph.D. and with 5 years experience would also be eligible.
3. **Lecturer : Pay Scale Rs. 2200-4000 (unrevised).**
   Qualification : First Class in Bachelor's degree in appropriate branch of Engg./Technology OR Master's First Class degree with B.E. Second class in appropriate branch of Engg./Technology.
   First Class Master's degree in appropriate branch of studies in case of teaching posts in Humanities & Sciences.

General requirements for all the posts :

(a) Apply on separate application form for each college and for each post together with complete documents.
(b) Application not on prescribed form and/or received late shall not be accepted.
(c) Short listed candidates for each post will be called for test/interview. Mere fulfilling of requirements of qualifications and experience will not be treated as a right to be called for test/interview.
(d) Candidates who have applied in response to earlier advertisements made by the respective colleges for the above posts should apply again, if they strictly fulfil the requirements.
(e) Candidates in Government/Semi-Government/Universities service should apply through proper channel. An advance copy on prescribed form may be sent alongwith attested copies of certificates/supporting documents. "No Objection Certificate" should be produced at the time of interview. Self attestation of documents is not acceptable.
(f) Number of posts can be varied as per requirement.

Dr. R.C. Bahl
PRINCIPAL & CO-ORDINATOR

TILAK MAHARASHTRA VIDYAPEETH

(Deemed University)
Vidyapeeth Bhavan, Gultekadi
PUNE-411 037

Applications are invited in the prescribed form for the post of "PROFESSOR IN ECONOMICS" — (open).

Qualifications and pay scales are as per the norms laid down by the University Grants Commission and Government of Maharashtra, The details of which are available alongwith the application form in the Vidyapeeth on payment of Rs. 50/- in cash, or Rs. 60/- by D.D. drawn in favour of "Registrar, Tilak Maharashtra Vidyapeeth, Pune."

The last date for submission of application is 13th August, 1999.

Advt. No. Adm./9/99 **R.K. Dhavalikar**
Date : 5th July, 1999 **REGISTRAR**

MANONMANIAM SUNDARANAR UNIVERSITY

THIRUNELVELI-627 012

(Advt. No : Estt/T/Advt./99)

POSTS CALLED FOR

Discipline	Designation	Nos.
Communication	Professor	01
	Reader	01
Statistics	Reader	01 (SC)
Computer Science	Lecturer	01
Environmental Sciences	Lecturer	01
Coastal Area Studies	Lecturer	02(OC-1, SC-1)
Mathematics	Lecturer	02 (OC-1 SC-1)
Library & Information Sciences	Lecturer	01

Salary :

UGC Scale of Pay :
Professor : Rs. 16,400-450-20, 900-500-22,400
Reader : Rs. 12,000-420-18,300
Lecturer : Rs. 8,000-275-13,500
Form & Details : A Demand Draft for Rs. 200/- in favour of "The Registrar, Manonmaniam Sundaranar University, Thirunelveli" with a self addressed stamped envelope to the value of Rs. 12/-.
Important Dates : Application : Issuing from 01.07.99 to 20.07.99.
Submission on or before 27.07.99.

Thirunelveli **Dr. K.M. Pathusha**
29.06.1999 **REGISTRAR**

CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE

FOR WOMEN NUVEM, SALCETE, GOA-403 604

Applications with full bio-data are invited for the following posts so as to reach the undersigned within 15 days from the date of publication of this advertisement, for the year 1999-2000.

Applications must be accompanied by certified copies of marksheets of all the examinations from SSC onwards. Those already employed, shall forward their applications through proper channel and shall account for breaks if any in their academic career.

Category of posts :
OPEN/CLEAR VACANCY
1. Lecturer in Zoology — 1 post (Full-time)
Essential Qualifications :
A Master's degree of a recognised University in the relevant subject with eight/six papers and at lest 55% marks or its equivalent grade and good academic record.
Candidates applying for Lecturer's post must have passed the Eligibility test for lecturership conducted by the U.G.C., CSIR or similar test accredited by the UGC. However, if such candidates are not available or found suitable, general category candidates will be appointed on temporary basis and the appointment will not be confirmed till the candidate passes the NET/SET.
Scale of Pay : Rs. 2200-75-2800-100-4000 plus admissible allowances as per rules.
Terms and Conditions of service are those laid down by the Goa University/Government of Goa and other competent authorities.

Sr. Margaret Angela A.C.
PRINCIPAL

DEMPO CHARITIES TRUST

DEMPO HOUSE, CAMPAL, PANAJI, GOA-403 001

Applications are invited for the post of Principal of Dhempe College of Arts & Science, Miramar, Panaji, Goa.

Minimum Requirements :
(a) He/She should be an approved teacher in a College or University, with contribution to educational innovations, design of new courses and curriculae.
(b) Good Academic record with Ph.D. Degree or an equivalent published work and at least 8 years teaching experience at the level of Lecturer or above in a College or University.

Or

(c) Good academic record with M.Phil degree and at least 10 years of teaching experience at the level of Lecturer or above in a College or University.

Scale of Pay : Rs. 3700-125-4950-150-5700 (Pre-revised) Plus admissible allowances as per Goa Govt. rules.
Date of Joining : 1st January 2000.

Application should contain the information on the following points :

Full Name, Date of Birth, Designation of the post held, Academic Qualifications, Teaching and Administrative Experience, List of Papers Written/Read in the Seminars/Conferences etc.

Application along with copies of Statements of Marks secured at :
1) i) S.S.C., ii) Intermediate/H.S.S.C., iii) B.A./ B.Sc., iv) M.A./M.Sc. Examinations.
2) Xerox copy of any higher degree secured.
3) Certified xerox copy of the approval granted by the University at the time of appointment in the affiliated colleges.
4) Experience Certificate

should be sent through proper channel within 20 days from the date of publication of the advertisement.

TRUSTEE

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

AURANGABAD

ADVERTISEMENT NO. ESTT/R.O./111/99

Applications in the prescribed form are invited for the post of Controller of Examinations on or before 16th August, 1999 from the candidates fulfiling the following conditions.
Pay Scales : Rs. 4100-5300 (Un-revised)
Tenure : For a term of Five years and eligible for re-appointment.
Age : Shall not be less than 45 years. Relaxable for Employees of Universities, Colleges & Recognised Institutions.
Qualifications and Experience : (a) Should possess Post-graduate Degree with at least 55% marks OR its equivalent grade, conferred by a statutory University. (b) (i) Possess 13 years experience as Lecturer in a University/College/Recognised Institution with five years experience in Educational Administration OR (ii) Possess comparable experience in research establishment OR other Institutions of Higher Education. OR (iii) Possess five years administrative experience as Deputy Registrar OR 13 years experience as Assistant Registrar. (c) Be proficient in Marathi Language.
Prescribed forms are available on payment of Rs. 25/- each from University Publication OR by Demand Draft of Rs. 25/- in favour of "Registrar, Dr. Babasaheb Ambedkar Marathwada

University, Aurangabad", payable at Bank of Maharashtra, University Branch, Aurangabad with a self addressed envelope of 23 x 10 cms. with a stamp of Rs. 5/- for postage.

Applications should be supported with related documents/Certificates duly attested. Incomplete applications and applications received after the due date will be rejected.

In Service candidates should apply through proper channel.

REGISTRAR

UNIVERSITY OF MADRAS

"Applications are invited from the eligible candidates by the Registrar in-charge, University of Madras, Chepauk, Chennai-600 005 for one post of Research Officer equivalent to the cadre and pay scale of lecturer of the University of Madras at Dr. Ambedkar Centre for Economic Studies, University of Madras in the scale of Pay Rs. 8000-275-13500.

Qualifications :

i) Good Academic record with atleast 55% of marks or an equivalent grade of 'B' in the seven point scale with letter grades O, A, B, C, D, E and F at the Master's degree level in Economics from an Indian University, or an equivalent degree from foreign University. Besides fulfilling these qualifications candidates should have cleared the eligibility test (NET) for Lecturers conducted by the University Grants Commission (UGC), Council of Scientific and Industrial Research (CSIR) or similar test accredited by the UGC. The minimum requirement of 55% of marks is not insisted upon for the existing incumbents who are already in the University/Colleges.

ii) A relaxation of 5% marks is provided i.e. from 55% to 50% of marks at the Master's level for the SC/ST categories.

iii) A relaxation of 5% marks is provided i.e. from 55% to 50% of the marks to the Ph.D. Degree holders who have passed their Master's degree prior to 19th September 1991.

iv) 'B' in the Seven point scale with letter grades O, A, B, C, D, E and F shall be regarded as equivalent to 55% wherever the grading system is followed.

Specialisation :

Publications in the Indian Economic thoughts and Dr. Ambedkar's Economic ideas are preferable.

No. of Posts :

One post of Research Officer-General Turn (GT) sanctioned by Dr. Ambedkar Foundation, Ministry of Social Justice and Empowerment, Govt. of India. Though the post is identified as G.T. preference will be given to the candidates belonging to Scheduled castes, Scheduled Tribes, Backward classes or those belonging to other weaker sections of the Society, in accordance with a clause in this regard in the guidelines provided in the revised scheme for Dr. Ambedkar Chairs.

Candidates may apply to the Registrar, University of Madras (by designation only), for specimen application form and other instructions along with the Demand Draft for Rs. 100/- drawn in favour of the Registrar, University of Madras, Chennai-600 005 towards fee payable along with self addressed stamped envelope (size 25 cms x 12 cms) to the sufficient value. SC/ST candidates may apply for the form along with a Demand Draft for Rs. 50/- only on production of community certificate.

The last date for the issue of applications and submission of applications is 30.7.99.

Note :

1. Applications (8 copies) should be made only in the prescribed by the University of Madras.
2. The application should be complete in all respects and incomplete applications and applications received after the last date will be summarily rejected.
3. Candidates from abroad may apply in plain paper along with prescribed fee enclosing their Bio-Data (8 copies).
4. Applications from the candidates who are above 50 years of age shall not be considered. However, the age limit shall not be applicable to those who are already working in the University of Madras.
5. The Syndicate of the University of Madras reserves the right to fill or not to fill the said post without assigning any reasons whatsoever.

REGISTRAR

NATIONAL INSTITUTE OF MENTAL HEALTH AND NEURO SCIENCES

(DEEMED UNIVERSITY)
BANGALORE-560 029

No. NIMH/PER(6)/ADVT-2/99-2000
June 18, 1999

NOTIFICATION

Applications are invited from Indian Nationals & Indian Nationals residing abroad for the following posts.

1 **One Medical Superintendent (Contract for Five Years)**
Qualification : a) (i) M.B.B.S. (ii) M.D. in Hospital Administration or Master's Degree in Hospital Administration. OR (b) M.D. Psychiatry/D.M. (Neuro)/M.Ch. Neurosurgery with experience in Hospital Administration. Preference will be given for candidates with qualification in Hospital Administration.
Experience : a) 12 years of experience for D.M. Neurology and M.Ch. Neurosurgery. (b) 14 years experience for M.D. Psychiatry OR M.D. in Hospital Administration.
Age : 50 years.
Scale of pay : Rs. 18400-500-20400 (Plus NPA)

2. **One Professor of Psychiatry (Gen)**
Qualification : M.D. in Psychiatry/M.D. Psychological Medicine/M.D. in General Medicine & Diploma in Psychological Medicine of two years' duration or equivalent.

3. **One Professor of Neurology (Gen)**
Qualification : D.M. Neurology/Speciality Board of Neurology (USA) or equivalent from a recognised Univesity/Institution.

4. **One Professor of Neurosurgery (Gen)**
Qualification : M.Ch. Neurosurgery/Speciality Board of Neurosurgery (USA) or equivalent from a recognised University/Institution.

5. **One Professor of Biostatistics (Gen)**
Qualification : a) I or II class in Master's degree in Statistics preferably in Bio-statistics or equivalent qualification from a recognised Institution/University. b) Ph.D/D.Sc. or equivalent qualification in Statistics preferably in Biostatistics from a recognised University/Institution.

6. **Three Assistant Professors of Clinical Psychology**
Qualification : a) I or II class in M.A/M.Sc. Degree in Psychology with Clinical Psychology as one of the subject or equivalent qualification (b) Ph.D/D.Sc in Clinical Psychology of a recognised University or equivalent qualification from a recognised University/Institution.

7. **Three Assistant Professors of Neuroanaesthesia**
Qualification : M.D. Anaesthesia/M.S. Anaesthesia/Speciality Board of Anaesthesia (USA) or equivalent with training in Neuroanaesthesia.

8. **Two Assistant Professors of Psychiatry**
Qualification : M.D. in Psychiatry/M.D. in Psychological Medicine/M.D. in General Medicine and Diploma in Psychological Medicine of two years duration or equivalent.

9. **One Assistant Professor of Biostatistics**
Qualification : a) I or II class Master's degree in Statistics preferebly n Biostatistics or equivalent qualification from a recognised Institution/University. (b) Ph.D/D.Sc. or equivalent qualification in Statistics preferably in Biostatistics from a recognised University/Institution.

10. **Four Assistant Professors of Psychiatric Social Work**
Qualification : a) I or II class M.A./M.S.W. Degree in Medical Psychiatric Social Work (b) Ph.D/D/Sc. in Medical and/or Psychiatric Social Work from a recognised University/Institution.

11. **Two Assistant Professors of Nursing**
Qualification : a) I or II class M.Sc. Nursing with speciality in Psychiatric Nursing (b) Ph.D/D.Sc. in Nursing from a recognised University/Institution.

12. **Two Assistant Professors of Neuro Imaging & Interventional Radiology**
Qualification : M.D. Radiology/M.S. Radiology/Speciality Board of Radiology (USA)/ FFR or equivalent with training in Neuroradiology for two years.

13. **Two Assistant Professors of Neurophysiology**
Qualification : M.D. or M.Sc. Degree in Basic Medical Sciences with specialisation in Mammalian Neurophysiology or allied areas for MEDICAL
OR
a) M.Sc. Degree I or II class in Physiology or allied discipline of Life Sciences from a recognised University/Institution. (b) Ph.D/D.Sc. with specialisation in Mammalian Neurophysiology or area allied to it from a recognised University/Institution for NON-MEDICAL.

14. **One Assistant Professor of Neurochemistry**
Qualification : M.D. Bio-chemistry/M.Sc. Medical Bio-chemistry for MEDICAL
OR
a) I or II Class M.A./M.Sc. Degree inBiochemistry/Chemistry with Bio-chemistry (b) Ph.D/D.Sc. in Medical Bio-chemistry for NON-MEDICAL.

15. **One Assistant Professor of Biophysics**
Qualification : M.D. in Biophysics for MEDICAL
OR
a) I or II Class in M.Sc. Degree in Physics (b) Ph.D/D.Sc. in Biophysics or equivalent from a recognised University/Institution for NON-MEDICAL.

16. **One Assistant Professor of Neuropathology**
Qualification : M.D. Pathology/M.D. Pathology and Bacteriology for MEDICAL.
OR
a) M.Sc. Medical Pathology (b) Ph.D Pathology/D.Sc. Pathology/Speciality Board of Pathology (USA) or equivalent with two years training in Neuropathology from a recognised University/Institution.

17. **Two Assistant Professors of Neurosurgery**
Qualification : M.Ch. Neurosurgery/Speci-

ality Board of Neurosurgery (USA) or equivalent from a recognised University/Institution.

18. **Two Assistant Professors of Neurology**
Qualification : D.M. Neurology/Speciality Board of Neurology (USA) or equivalent from a recognised University/Institution.

19. **One Assistant Professor of Psychopharmacology**
Qualification : M.D. in Pharmacology/M.D. in Psychiatry with experience of atleast three years in the field or equivalent for MEDICAL

OR

Ph.D/D.Sc. in Pharmacology for NON-MEDICAL

Age Limit, Pay Scale and Experience applicable for the posts of Professors and Assistant Professor are as follows

Professors (Medical)
Age : 50 Years
Experience : Fourteen years teaching and/or research experience in a recognised Institution in the subject of speciality after obtaining the qualifying Degree of M.D/M.S. OR TWELVE years after obtaining M.Ch./D.M. or qualification recognised equivalent thereto.
Scale of Pay : Rs. 18400-500-22400/- (plus NPA)

Professor (Non-Medical)
Age : 50 Years
Experience : Fourteen Years teaching and/or research experience in the discipline/subject concerned after obtaining Doctorate Degree.
Scale of Pay : Rs. 18400-500-22400/-

Assistant Professors (Medical)
Age : 40 Years
Experience : Three years teaching and/or research experience in a recognised Institution in the subject of speciality after obtaining the qualifying Degree M.D/M.S. or 1 year after obtaining M.Ch/D.M. or qualification recognised equivalent thereto
Scale of Pay : Rs. 11625-325-15200/- (plus NPA)

Assistant Professor (Non-Medical)
Age : 40 Years
Experience : Three Years teaching and/or research experience in the discipline/subject concerned after obtaining Doctorate Degree (Ph.D)
Scale of Pay : Rs. 11625-325-15200/-
Reservations :
Professors — 4 (Gen-4)
Assistant Professors — 27 (Gen-9), (S.C.-10), (S.T.-8)

Terms & Conditions

1. Application forms can be obtained from the Registrar, NIMHANS, P.B. No. 2900, Bangalore-560 029 in person by giving Rs. 100/- Crossed Indian Postal Order/post by sending crossed Indian Postal Order for Rs. 100/- drawn in favour of "DIRECTOR, NIMHANS", with self addressed Rs. 6/- stamped envelope (23 cms x 10 cms).
2. Separate applications should be sent for each post.
3. All British Medical qualifications obtained after 11.11.1976 are not recognised.
4. Those who are in service should forward the application through their employers or produce 'NO OBJECTION CERTIFICATE' at the time of interview without which the candidate's application will not be considered.
5. Cut off date for calculation of age, experience is the last date prescribed for submission of application.
6. Age relaxation will be given as per rules for SC/ST and candidates in Govt. service.
7. Candidates residing abroad are exempted from payment of application fee and applying in prescribed application form.
8. Applications of eligible candidates from abroad will be considered in Absentia depending upon the merit of each case at their request.
9. All the posts except Sl. No. 1 are permanent and are eligible for pensionary benefits in accordance with Govt. of India rules.
10. **LAST DATE FOR RECEIPT OF FILLED IN APPLICATION FORM FOR**
A) INDIAN NATIONALS IS 05.08.1999.
B) INDIAN NATIONALS RESIDING ABROAD IS 12.08.1999.

DIRECTOR

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1. 2-Yr. MA in Anthropology. Bachelor's Degree Hons. 10+2+3 OR equivalent with a minimum of 48% aggregate marks. Seats 15-25.
2. 2-Yr. MA in Tourism Management. Bachelor's Degree Hons. 10+2+3 with a minimum of 50% aggregate marks & Tourism as additional Paper. Seats 10-30.
3. 2-Yr. Master of Personnel Management and Industrial Relations. Bachelor's Degree 10+2+3 with a minimum of 48% aggregate marks or equivalent. Seats 15-25.
4. 2-Yr. MA Social Work. Bachelor's Degree 10+2+3 with a minimum of 48% aggregate marks or equivalent. Seats 15-30.
5. 2-Yr. M.Sc. Environmental Science. B.Sc. 10+2+3 with a minimum of 55% aggregate marks (Equivalent GPA with a minimum 55% aggregate at + 10 & 10+2 levels) Seats 10-15.
6. 2-Yr. M.Sc. Molecular & Human Genetics. B.Sc. 10+2+3 OR MBBS with a minimum of 55% aggregate marks or equivalent GPA with minimum 55% of 10+ 10+2 levels. Seats 5-10.
7. 2-Yr. M.A./M.Sc. Population Studies. BA./B.Sc. 10+2+3 in Statistics/Sociology/Psychology/Geography/Anthropology/Economics/Home Science/Mathematics with a minimum of 48% aggregate marks & Maths. As one of the subjects at 10+2 level. Seats 10-20.
8. 1-Yr. Certificate Courses in Painting, Modelling & Sculpturing, Pottery & Ceramics, Advertising Design. Passed 10+2 Examination. Seats 10 in each Course.
9. 2-Yr. Master of Finance & Control-FMC with Economics or Maths. or Statistics/Applied Statistics/B.Sc-Hons. with Maths/Stat/Computer Science/B.Tech. with a minimum of 48% aggregate marks. Seats 15-30.
10. 2-Yr. LL.M.-Human Rights-LL.B. 10+2+5 OR 10+2+3 with a minimum of 50% aggregate marks from BCI recognized institutions. Seats 15-25.
11. 2-Yr. PG Diploma in Ayurvedic Drug Standardization-BAMS recognized by CCIM with a minimum of 50% aggregate marks. Seats 5.
12. 2-Yr. PG Diploma in Panchkarma Therapy. BAMS recognized by CCIM with a minimum of 50% marks. Seats 5.
13. 4-Yr. BDS-Inter Sc/Pre. medical/equivalent with Physics, Chemistry and Biology with 50% aggregate marks in Science subjects. Age within 17-25 Yrs. Seats 10.
14. 2-Yr. Diploma in Public Health. MBBS/equivalent recognized by MCI having completed one year internship. Seats 5.
15. 2-Yr. Diploma in Dialysis Technology. B.Sc. 10+2+3 with Zoology/Chemistry/Physics/Bio-physics/Bio-Chemistry/Life Science as one of the subjects with 50% aggregate marks OR B.Sc. in Lab. Tech. with 50% aggregate OR Diploma in Lab. Tech. with 5 Yrs. Experience. Seats 2.
16. 1-Yr. Post-doctorate Certificate Course. PDCC in Cardio-Thoracic/Anaesthesia/Neuro-Surgical Anaesthesia/Paediatric & Neonatal Anaesthesia/Plastic & Microvascular Surgery Anaesthesia/Genito-urinary & Renal Transplant Anaesthesia/Intensive Care Anaesthesia and Pain Therapy & Palliative Care. MBBS followed by MD-Anaesthesiology/DNB/equivalent Degree recognized by MCI. Age not more than 40 years. Seats 2 in each Course.

Fee structure : Rs/annum : courses 1 (5,000); 4 (10,000); 3 & 5 (20,000); 2 & 9 (30,000); 6, 14 & 16 (25,000); 7 (10,000); 8 (5,000 for Indian & 10,000 for foreign students); 10 (10,000); 11 & 12 (12,000); 13 (1.5 lac-other fee at par with MBBS) and 15 (15,000).

Important dates : Commencement of sale of application forms 28.6.99; last date for receipt of requisition : 19.7.99; last date of sale at counter : 22.7.99 and last date for receipt of duly filled application forms by post & at counter : 27.07.99.

Terms & Conditions : Candidates appearing in a qualifying examinations are eligible. If the number of candidates opting a particular Course is less than 50% the Course may be deferred Reservation-As per Government of India rules.

Application Form : The application form can be obtained from the office of the Controller of Examinations, BHU by sending a requisition along with a STATE BANK OF INDIA crossed Demand Draft for Rs. 100/- drawn in favour of THE CONTROLLER OF EXAMINATION, BANARAS HINDU UNIVERSITY and payable at SBI, BHU Branch, Varanasi, (Code No. 0211) together with a self-addressed unstamped envelope of the size 32 cms x 26 cms superscribed "APPLICATION FORM FOR ....." (name of the course). Application forms can also be obtained from the counter of the office of The Controller of Examinations against cash/Demand Draft/Banker's Cheque on all University working days between 11.00 am to 2.00 p.m. Demand Draft/Banker's Cheque issued by the State Bank of India shall only be accepted. The applicant is advised to write his/her name and the course applied for on the reverse of the Demand Draft/Banker's Cheque.

Note : (i) Add Rs. 30/- towards postal registration charges against requisition by post.

KHAJA EDUCATION SOCIETY'S
Khaja Banda Nawaz College of Engineering Gulbarga & Khaja Banda Nawaz Institute of Management & Computer Applications

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Applications are invited for admission to M.Tech/MCA (Master of Computer Applications) 1999-2000.

M.TECH.	**ELIGIBILITY**
1. Structural Engineering	: BE/B.Tech Civil Engineering with not less than 50% of marks as the aggregate.
2. Computer Science Engg (Software)	: Pass in B.E./B.Tech in Computer Science/ E&EC/Elect. & Electronics/Information Science Engg/Electr. & Instr./Electro. & Telecommunication/ M.Sc., (Applied Electronics) with not less than 50% of marks as the aggregate.

GATE candidates shall be given priority :

Members of Teaching Staff of an Engineering College sponsored by their respective colleges, & members working for 3 years in an organisation, Government concern and/or industry sponsored by their organisation who fulfil the above conditions may also apply.

MASTER IN COMPUTER APPLICATIONS (MCA) :

Bachelor's Degree of Minimum 3 years duration recognised by this University with Mathematics or Statistics or Computer programming/Computer Science/Computer Applications as one of the subjects of 10+2 level. or

Any other examination recognised by this University as Equivalent thereto.

Forms for M.Tech. and MCA can be obtained from the address given below on payment of Rs. 250.00 (each discipline) personally or by sending a Demand Draft.

Sd/-
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Khaja Banda Nawaz College of Engineering
New Hostel, Rauza Buzurg, Gulbarga-4. Karnataka State.

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